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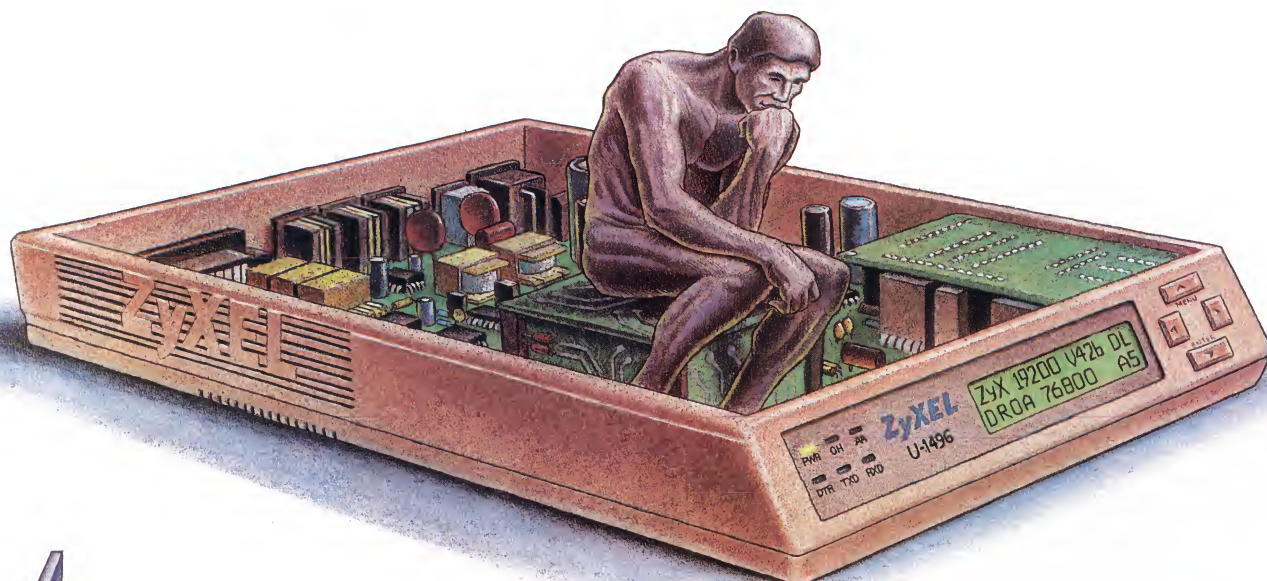
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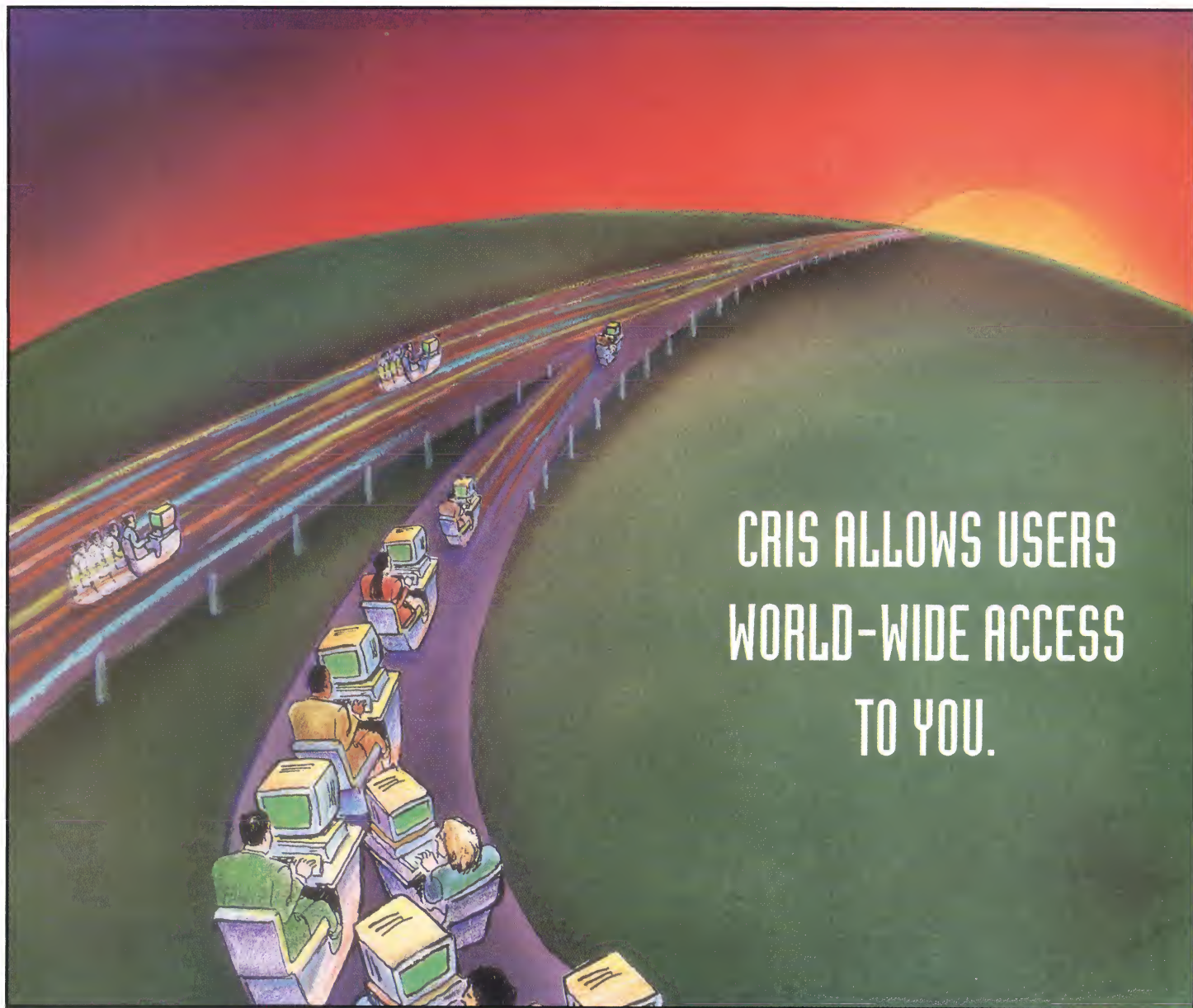
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EDITOR'S NOTES

FROM THE ROSE GARDEN TO THE DINNER TABLE

In this issue we note some fairly dramatic changes in the way the world online works, and the way the world works, online.

The story on the Clinton White House's new connectivity may seem innocent enough. But I suspect it's actually one of those things we'll all look back on, dig through our back issues, and try to figure out when it really started. The Clinton White House is literally pumping every public statement uttered by anyone who is anybody in the administration onto the wires - usually with a same day time proximity fuse. This has been the mantra of the online community for nearly a dozen years. "Put it online - full text." We wanted it. And we're getting it.

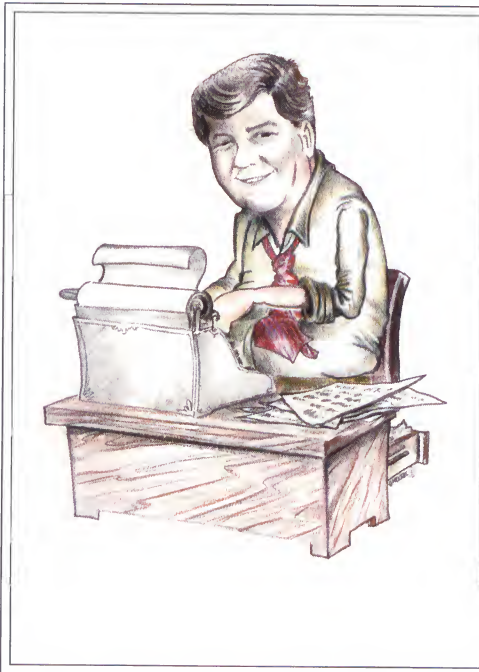
If you combine this new transmission medium with the concept of the National Information Infrastructure - a data highway reaching into every home in the country, every business, every school, and anywhere else we can find to run two copper wires or a strand of fiber, something very different emerges.

Consider that right now, the quote-news media - unquote delivers the pronouncements of the government to us with an immediate and endless litany of criticism, counterpoint, and analysis. I have a love/hate relationship with the wider news media. They can be petty, self-serving, biased, patronizing, and too often cater to the least common denominator among their audience. But they are quite separate from our government and many have noted the "fourth" branch of our government that offers some check and balance to the power of the Presidency. However imperfect, to some degree they serve as the concentrated voice of "us."

I think most of the Presidents who have served, certainly during my lifetime, have also expressed some level of frustration with the national television networks, newspapers, and other media in descending order of effectiveness and reach. It can be difficult to get away

with much under the eyes of a couple of hundred ambitious journalists crawling all over Washington with dreams of a Watergate dancing in their heads.

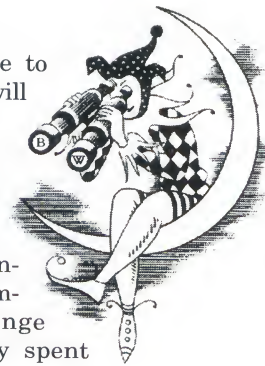
Now picture a world where the President can utter what words he likes, and the full text is delivered to 50 million e-mail boxes thirty minutes later. Who is going to "scoop" that? In fact, who is going to get a chance to comment on it - in context? We are facing an imminent devaluation of the talking head. And perhaps we are facing a Presidency that has found a way to circumvent, at least



to some degree, the badgering of the press.

It features an attractive good that I am emotionally attuned to. Instead of 30 second sound bites, for those who care, they can instantly receive pages and pages of full text of what was really said. Every step, every word, every "photo opportunity" can be on the wires in moments. But as growing numbers online are learning, no matter how hard you suck on the fire hose of e-mail, more bytes does not equal more usable information. You don't even get that "full" feeling - just frustration. And the concept of the President going "directly to the people" is really a scant step from a government controlled news medium. Certainly there will be online discussions, and certainly this will not work in

a vacuum. I have to believe that news will continue.



On the other hand, I'm reminded of the London stock exchange. They installed a totally computerized exchange system, and they spent millions on some very deluxe monitors to display activity of all types visible from virtually anyplace on the trading floor. Beautiful color monitors to read out every tick and waver of thousands of stock prices for the hundreds of traders who crowded that floor each day. The problem was, since they could access all that information from their own offices by personal computer, the traders abandoned the floor ENTIRELY within a WEEK. While there still is a London Stock Exchange, and it is more active than ever, the floor itself looks like a ghost town. Change can happen very quickly.

And revolutionary change in our national news organizations has been happening over the past few years anyway. The television audience has grown more dilute and the big three networks have cut back expenditures on the national evening news dramatically, shutting down overseas bureaus. Now the cable companies, Tele-Communications, Inc., particularly, are talking about expanding the current 100 or so cable channels to over 500 channels. TCI is investing \$1.9 billion over the next four years to put fiber in the home. They want to be part of the National Information Infrastructure. The feeding frenzy in Washington to be part of the National Data Highway is just getting started. But in all of this, the channels become more numerous, and more dilute. The concentration of power and trust in Dan Rather to keep the President honest is undergoing structural change of untold proportions. When each of us can transmit and receive with the same dispatch as CBS news, receiving the "word" from a symbolic central site of the stature of the White House takes on a new meaning. Reality is what they say it is. And without anyone with a similar concentra-

tion of horsepower to question it, a fundamental shift in political power will have occurred.

How far to take this? Well, I don't know. Nature abhors a vacuum. It may be that alt.george.will and alt.rush.limbaugh may become the equivalent of their television counterparts. It may be that with full motion video over the Internet, we will "subscribe" to actual video mailing lists of a variety to make TCI's 500 channels look like Alexander Bell's dream of using telephones to transmit musical concerts to distant cities. But I have no sense at this point how these journalists will be rewarded online - there is little in the way of current mechanism to do this. And I have in my lifetime seen a President personally and politically ruined largely by concentrated power of the big three networks and a couple of newspapers. And while I thought it was unfair and undeserved at the time, I took a certain satisfaction that they could in fact do it. If those channels are diluted and reduced to simply relaying the contents of alt.prez.sez to the remaining few who have no connection to the net, I'm a little hazy on the what was lost for what was gained. And that's the way it is,...June, 1993.

Jack Rickard
Editor
Boardwatch Magazine

LETTERS TO THE EDITOR

Address correspondence to LETTERS TO THE EDITOR, Boardwatch Magazine, 5970 South Vivian Street, Littleton, CO 80127 or by electronic mail to letters@boardwatch.com.

Jack

I am sure that this is probably one of hundreds of messages that you are gonna get on this subject, but I just had to have my say. I run a single line BBS on my Amiga 3000 with an 68040 accelerator, which just happen to be several times faster than a DOS machine running a 66 mhz 486.

The main reason I run my BBS on the Amiga instead of getting a clone to run a BBS on is because of the excellent multitasking that the Amiga does, I don't have to use something like desqveiw, OS2 or Windoze. Unfortunately I don't have Internet capabilities on my bbs not because it can't be done with my software but because I can't locate a reliable and cheap feed. The BBS I am sending you this message from is hooked into the Internet using DLG, which sells for around \$150.00 the programs to hook DLG into the internet are, either Shareware, or Freeware, most of em written by Matt Dillon. Can you tell me of an DOS bbs program that will allow you to hook up to the internet for that price?

OOPS almost forgot to mention with DLG and most other Amiga BBS packages you don't have to pay extra for multiline versions. The BBS I am sending this message from Amiga Gateway is currently running 2 lines and it would be real easy for him to add more lines - all he needs is a multiport serial card and the modems to do it.

My own BBS DMZII is currently running 1.25 Gigs of hard drive space. I carry a large collection of Amiga and Adult software the adult stuff is online as Amiga and DOS compatible graphics(IFF and GIF). I read your magazine on a regular basis and most of the time I enjoy it, although I do not like the lack of Amiga coverage, I do see a lot of DOS and MAC stuff. I realize that the Amiga is treated by most everyone as a redheaded, left handed, stepchild but given the advances being made with Amiga BBS software maybe you should take a look at whats going on. I have a friend who has written A BBS and term program that will allow you to upload, download, and either read messages, or play online games all at the same time, now I know you can do this on the DOS machines, but Parabit is a shareware program with a registration fee of about \$50.00, Does the DOS world have one for that price?

Well I guess you get the point anyway if you need someone to write some articles on the Amiga and Telecomm let me know I would be glad to give it a try. You can either reach me here through

Internet or send a message to DMZII
BBS FIDO 1:2612/1011 301-863-6410

Glenn Carey

glenn_carey@agwbbs.new-orleans.LA.US

FidoNet: 1:2612/111

Glenn:

Nope. Your's was the only letter Glenn.

Really, you needn't defend the honor of your machine. I thought the KIM-1 was a neat computer, and have loved every model since then - Amiga's included. One of my favorites was the Victor 9000, but it didn't make it either. Your view of the DOS world is slightly inaccurate. They can do all of that for free or at low cost. \$50 term programs, BBS software, and Internet utilities abound. But that's not the point. We all live in "ponds" of activity online and there are precious few frogs carrying the message between ponds. My comment was of course tongue in cheek. But not by much.

I used to write software for Commodore computers. I'm actually a little more familiar with them than I pretend, though not the later models. Had a little falling out with Jack Tramiel a number of years ago - over the Amiga actually. It was coming, and coming, and coming... for years. And we started a pretty big article on them a year or so ago. Found a guy in California who had the world's LARGEST Amiga BBS list. We dialed a few to spot check accuracy and found 34 disconnects in the first 40 numbers. That was the end of that project.

But while I'm not opposed to covering anything that strikes me as interesting, the Amiga on its own merits faces a losing numbers game. Actually, about 7% of the online world is Macintosh and it makes no economic sense for me to devote a word to it. But I rather fancy Bill Gram-Reefer's writing style, and the occasional oddity spills out of that community that I personally find interesting, and assume our readers do. And I guess I rather hope they'll get a little more online than they are, and if they do, we'll have been there. The whimsey of an aging hack if you will. Statistically, the Mac is almost invisible. And if the Macin-

tosh is numerically invisible, the Amiga doesn't quiet reach the status of myth - statistically speaking.

That doesn't mean it isn't an interesting machine, a capable machine, in some aspects, a superior machine. My impression is that it has found some home in video production ala Video Toaster. But Boardwatch - the Amiga Edition isn't likely to happen soon. It would be more likely we'll cover some special topic BBS that happens to run on one.

All that said, I've run some odd lists in these pages over the past six years. The list of Amiga BBSs is not really out of the question.

Jack Rickard

hi jack.

I wrote you a few weeks ago asking if you knew any bbs's in hungary. well, i also wrote to a few sysops in europe, and got in touch with marcel, a sysop in zurich (if you want more details, i can get them to you, i just don't have them at my fingertips at this moment). he sent me a list for hungary:

NETputer, Szekesfehervar_HUN,
Bela_Mucs, 36-22-318-039 (9600)

Turul, Tatabanya_HUN, Miklos_Kiss,
36-34-17-116 (9600)

PTBBS, Pecs_HUN, Otto_Farkas, 36-
72-13-048 (2400)

Savaria, Szombathely_HUN,
Laszlo_Toht, 36-94-27-878 (9600)

HumanSoft_BBS, Varpalota_HUN,
Istvan_Tanczos, 36-88-71-956 (9600)

Mordor_BBS, Veszprem_HUN,
Zsolt_Szoboszlai, 36-88-24-432 (9600)

Region,38, AdriaNet,SLO_HR,
Gregor_Rudolf, 38-66-34986 (9600)

if you found any additions to this list please let me know. my friend and I will attempt to contact some of bbs's listed above in a few days.

Michael Muller
michael.muller@boardwatch.com

Michael:

It's a start, but I'm going to guess Hungary sports a few more than that. Let's see if one of our reader's squirts a larger list?

Jack Rickard

Dear Jack:

As a faithful subscriber to Boardwatch for about a year now, I felt it high time to jot down a little note of thanks for your contribution to the BBS community! A job well done...keep it up.

I find your Internet connect articles quite interesting, though until I understand it all a bit better I'll continue to use my FidoNet/UUCP gateway (I have looked over some of the software available for this sort of thing and find it all a bit baffling -I am NOT a programmer!).

Also of interest are the theme BBSs you showcase... Now quite frequently that tends to be an environment issue BBS. Fine. I like that. Just thumb back through a few issues and I'm sure you'll see what I mean.

However, there is ANOTHER side to all this environmental concern... Many Americans view the environmental community as a bunch of doom and gloom sayers. Quite often they expound panic and hysteria, and quite loudly I might add. They nearly put an entire apple industry out of business with their alar scare. Global warming, the ozone "hole" being eaten by CFCs — it's all merely theory at this point.

But we're sure crippling industry, recreation, and almost all walks of life based on said theory... The very same "scientists" that started the spewing forth these global warming chunks not too long ago were the proponents of another impending ice-age about 15 years ago... Funny.

That's where Sahara Club comes into play... A bastion for conservatism. We've been in existence since November '89. Now, with over 5,000 members, a regular newsletter, a free support BBS (run

out of my own pocket, NOT funded!) open to all... Supporting Off-Roadng, Timber, Guns and More! The BBS has been online continuously since November '90, a FidoNet node since June '91, carrying a wide variety of FidoNet echomail conferences - some technical, some environmental issues, some just fun, and home of the SAHARA echo (currently only privately distributed).

The Sahara Club BBS also carries a decent selection of software and has a wide variety of text articles from some of America's greatest conservative thinkers - we have a pretty good working relationship with others in what's called the Wise Use Movement and a variety of conservative think tanks...

Please take this opportunity to consider listing us in your regular List of Online Information Services - I'm sure there are many out there in the electronic community who are like thinking and do not even know we exist.

If you need more information, please feel free to email me at the above address.

Thank you,

Patrick Martin
Sahara Club BBS
(818) 893-1899
FidoNet 1:102/825

PS. Please do not print this letter in your Letters to the Editor column unless you're ready for a LOT of flack from the environmental-activist types out there in BBSland - in three years time we have become a rather heavy force to deal with when it comes to public land-use issues affecting the western United States and they have nothing nice to say about us... I love it! (Yes, unlike the sayers of environmental doom and gloom, I ENJOY what I do).

Patrick:

With your permission, I'd rather publish it. Sure, it would be a shame for me to get any flack from anyone. But I enjoy what

I do too.

The BBS/Internet connection is a bit baffling, but I think it is an important direction for a number of reasons. The FidoGate works well enough, but it is painful to hand key Internet addresses with every reply. That was the reason for our development of the Personal Internet Mail Processor for TBBS - so our callers could use the BBS interface they were accustomed to for Internet mail. And we're not alone, a lot of people are working on software to make it easier - for all the BBS platforms.

I think this connection is important in ways that I'm almost hesitant to go into at this point - they are a bit grandiose. But I will say that the Internet is not only not going away, but it is quite likely to subsume everything in its path in a lot of ways. But the heart of the Internet is really a group of technoids suffering from cranial-UNIX-bellicosus who also can't count. They want to bring the Internet to K-12 schools for example. But there are 16,000 school districts in the United States and over 85,000 schools - we're not down to classrooms yet, much less to students and teachers, which all common knowledge in government aside, are the heart of why we HAVE schools. Our local regional host provider, Colorado Supernet, wanted nothing so much as to develop self sufficiency by providing Internet ports to the world. With almost nothing but word of mouth, they are now in a position where they can't add ports fast enough to have a prayer of connecting all the technoids in Denver who have already called and ordered ports, much less school systems, or the general public. I'm not exaggerating. Call them. If you can get something within six months, you know somebody.

And that brings us to the topic of Interface for this grand national data highway. We'll just wire America, and 50 million people or so will just sign on and happily begin exploring the joys of the Unix command line, right? I'll guess not. The interface to existing bulletin boards, and the use of Sparky's QWK offline mail readers, is less than optimal. But it's about the best we've got. I'm going to hear some guffaws, but mark where you read it first, (note that I actually said it about three years ago), the ordinary elec-

tronic bulletin board as operated now, will BE the interface to the Internet - and the only Internet most people will see for some time to come. If they can carry basic e-mail, globally, and Usenet News Groups, that covers about 90% of what people want and need from the Internet now. And there is actually a lot more a BBS can do pretty quickly. We are already seeing bulletin boards actually tying into the Internet for access via Internet, menu items that connect callers via Telnet to specific Internet information resources, and more. It actually IS quite feasible for every school to have their own 16 line BBS, and it IS feasible for those BBSs to connect to the Internet for e-mail and news groups, right now.

With regards to our propensity to cover environmental issues, actually we don't. We cover BULLETIN BOARDS that cover environmental issues. Environmental activist groups have been quite progressive in employing BBS technology for their own organizational and communications purposes - that's what we're interested in as a publication, and our readers can apply the same technologies to organize barbed wire societies if they like.

My personal views? Since you asked. I believe that environmentalism is a pagan earth worship religion differing not even in the details from several popular about 2500 years ago. Many people have lost faith in the organized religious entities in the United States, and it is not in the nature of mankind to live without religion. We are genetically predisposed at the cellular level to have one. So they have created one from pop-science and earth worship and called it green and good. If you do a little hysterical research, you'll find that the reason pagan earth worship religions kept dying out was that the heart of them always boils down to MAN IS BAD and THE EARTH GODESS IS GOOD. And ultimately self-destruction is the only solution to save the earth. If you look into the eyes of eco-activists today, they're glazed with the same fervor/fever as any other extremist religious sect. If you disagree with them, they howl in outrage in the same way. Avoid close contact, they can be dangerous if aroused or defending their young.

All that said, there is some legitimacy in the old scout edict to leave your campsite at least as clean as you found it. Good luck with your BBS.

Jack Rickard

Jack:

I was looking into starting a BBS. I have set up a small one line BBS using Wildcat. But, after reading about all the raids from the FBI. Secret Service and all the other law enforcements, I am having second thoughts. I am presently in the home satellite business and am using the BBS for my customers. The BBS # is 1-314-655-2263. I guess no matter what business you want to get into there is Big Brother watching and waiting.

Your magazine is very good and very informative.

*JERRY BRANDT
jerry.brandt@boardwatch.com*

Jerry:

Well I would shut her down then if I were you Jerry. If a few individuals in our land want to control the masses, that WOULD be news. And to be safe, we should all go along, right? I mean, why ruin their day with our silly concerns over freedom, personal privacy, or right to get from birth to death 75.6 years later as best we can? You should probably pull the plug before they arrive.

Jack Rickard

Hotep !! Hola ! Hi Jack,

My name is Walter Findlator and I am the Network Administrator for The Afra-Span Network ! While reading your April 1993 edition of BW, I read pg 13 Aaron Laramore's letter about African American information services. Well I'd like to tell you a little about our network here and what we do.

Afra-Span is North America's only information service geared towards the development of African & Latin descendants. That means that we teach how to survive economically, spiritually, so-

cially, as well as technologically. Many boards, Latin/African related all teach about history of a people but we here at Afra-Span teach about the future.

I am blessed with the ability to not only speak Spanish, but also to be a member (Site ambassador) for the Alliance of Black Telecommunications Employees and The Hispanic Alliance of AT&T. As an Afro-Cuban, I teach those who desire to know new things happening today to be competitive. It seems as if the company that employs me has this same vision because the managers in AT&T have a DIVERSITY & CULTURAL POINT in their checks that gets evaluated. In other words, part of their salary goes to show how and what they did within a multi-cultural environment.

We respect AT&T and back them wholly as the only Fortune 500 company to do this in the broadest of fashions. They also support both Alliances and pay for them to have professional networking in various cities around the US. This year it is New Orleans for the ABTE and Fort Lauderdale for Hispa.

Afra-Span Network is growing quite rapidly and we intend on being leaders in many communities and countries. We have recently celebrated at AT&T a holiday we created called ACA Day. ACA is short for African-Caribbean-American Day. We approached AT&T about this and they gave us \$1000 to support business in our communities. Afra-Span brought in vendors that the corporate climate had never heard of and everyone had enjoyed themselves immensely. It helped the small businesses within these communities also since it is hard to get a break from corporate America.

I appreciate sharing this information with you as well as speaking with you at last years' convention. We are sure to keep you informed of the 3 holidays left that we have "discovered" for these two respected communities. We have thus far targeted May 12th, Aug 13, and Oct. 8th. We will think of clever acronyms for those dates as well.

When you need more information from us, we will be glad to offer all the information you will need. We will see you at

ONE BBSCON so look for us. We are hardly ever missed (smile).

! Que le vaya bien !
De sus amigos aqui de
Afra-Span Network !

Walter Findlator
voice (404)270-5016
data (404)270-5522
wfindlator@attmail.com
afraSPAN@attmail.com

Walter:

Well, there's nothing like some new holidays with clever acronyms, and a good dose of getting a cash break from corporate America, to teach people self-sufficiency, economic self-reliance, and a way to a better life. If you're happy, I'm happy. And just between us, I'm hardly ever missed either <??>.

Jack Rickard

Hey Jack!

Oh, but you knew you were going to be getting letters from Amiga sysops, didn't you? :)

I'm just one of a number of sysops that runs a BBS named DLG Pro from TelePro Technologies and runs on the Commodore Amiga. This software has just as much power and ease of use as any of the MS-DOS based BBS'. And since the Amiga has always been a true multitasking machine (unlike others that have to kludge or fake their way through doing multiple tasks at one time) it's just as easy to have a number of users on-line, message tossing and actually *using* the machine for a person's own uses. No need to dedicate a machine to a task when it can be used alongside your on-line crowd. Both command line and GUI based BBS' can be used. Freeware and shareware packages can be found on major BBS' and Internet sites that are classy enough to carry Amiga software. Commercial packages can be purchased for less than the equivalent cheapest multi-line programs from the MS-DOS world. I'm by no means the best representative of Amiga based bulletin boards but I certainly exist!

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I, like Bob Anderson from the April 1993 issue, have noticed that you only seem to cover the MS-DOS and an expanding Macintosh worlds of BBSing. This is something I've noticed with some magazines that say their covering the computer world, as long as its MS-DOS or Macintosh based. Yeesh. I imagine that one big reason for you not having more information on the Amiga world of BBSing is that you've gotten no articles concerning it.

But this isn't a note complaining about the reality of the world. I do look forward to each issue of "Boardwatch" because of the content and writing style of the articles and editorials. Thanks for the humor and insight into the strange yet enjoyable world of communications!

Regards always,
Greg Gerke,
Sysop of BeaverNet BBS
Greg.Gerke@beavnet.omahug.org

Well, you're welcome Greg. We try, but seriously there is more happening in the online world than ten magazines can cover. Some days, I feel like we're chipping paint chips off the side of a ship, and carrying it around showing it to people to try to demonstrate what a Navy looks like. Somehow, we give the unintended impression that Boardwatch defines what is happening online. We don't. At this point, I'm going to guess we're failing at even being representative of what's going on online. At one time, we did a passable job of it. But I would venture a guess that the total number of bulletin boards in existence when we started this publication was not many more than exist in the Amiga community alone today. And the Amiga community just isn't that big in the online world we face today. I received four written letters and six e-mail replies, each noting the "hundreds" and in a couple of cases "thousands" of angry replies they were "sure" I would be receiving.

And some days I do feel a bit inadequate to the task. The pile of stories I SHOULD have done is now bigger than I can ever do. WWTVnet, , Amiga, Black BBS, Religious BBS, Occult BBS, more lists, more editorial, and more technical stories. We'll try Greg. Jack Rickard
Hi Jack;

I will like to start a small bbs with fidonet connection and I will like to ask you, if you know of a bbs program that already has all the stuff that I need to get up and running ???.

What I am trying to say is a bbs thats already set to send and receive netmail, I will be using it for personal use as for sending my netmail to friends and stuff.

Thanks.

Richard Velez - via FidoNet node 1:107/930

Richard:

Well, I know this sounds a little trite. But have you considered FIDO BBS? That's like, what it was designed for, and what started it all. It's not young, and it lacks some of the newer features, but it does a pretty good job with FidoNet mail. Another old faithful package that is very inexpensive and still does a pretty good job of netmail is a package titled OPUS. Wynn Wagner III had FidoNet pretty much in mind when he wrote that one.

But actually, I don't know of anything that has "all the stuff you need to get up and running." Installing FidoNet is a bit of a treasure hunt - a utility here, a config file there, another utility over here. I use a package titled TBBS that requires an associated "add-on" titled The Integrated Mail System (TIMS). This package can handle up to 64 simultaneous high-speed FidoNet mail sessions, each on a different telephone line, with some inbound calls from other systems, some outbound calls TO other systems, and a few lines just dialing lost numbers in space, all at the same time. If you need to move a LOT of mail fast, this is the heavy over-the-road semi truck of FidoNet mail. But even then, we use some ancillary netmail utilities, unpacking/unarchiving utilities, and so forth. FidoNet would have taken over the world by now, but for the fact that a lot of the people involved in it LIKE puzzles and brain teasers.

Jack Rickard

Jack,

Do you know of a communications package for PCs that can place calls at predetermined times and then execute scripts to, say, automatically download mail off services like CompuServe?

Peter Klein
74007.765@COMPUSERVE.COM
Prudhoe Bay, Alaska

Peter:

I'm going to guess the closest thing to that I've found in satisfactory form is the new QmodemPro from Mustang Software, Inc. in Bakersfield California. Ostensibly a terminal program, it has really evolved into a mail manager. You can very easily script sessions on CompuServe and a number of other commercial services, QWK sessions on local bulletin boards, and nearly everything else in one "group". When you pull the trigger, it goes and gets ALL your mail from ALL sources in that group and puts it into a single mail database. It has a built in reader that allows you to read and respond to all this mail without giving much thought to what particular service it will ultimately be delivered to. It features spelling checkers, and cut and paste and a lot of nice mail features. Pull the trigger again, and it goes and uploads your replies - each to the appropriate service without a lot of supervision. It also deals with fax numbers as if THEY were e-mail addresses. If you deal with a lot of mail from several different sources, as some of us do, this is probably the best kept secret in the online world. They still think its a terminal program, and while I'll admit it does well enough on that count, it's really the e-mail tool that a few of us use to survive the fire hose.

Jack Rickard

Jack:

Since I am an air traffic controller, we don't use the term "Hi Jack", so it's just Jack. I enjoy your magazine, especially "Internet News". As a novice to Internet, I am trying to absorb as much information I can from all available sources about Internet.

For a future article(s), perhaps you could do a simple step-by-step walkthrough of Internet session on one of the services. Since CompuServe has more than a million members now, that could be your target audience. Some specific examples would be helpful. I use the Information Manager on CompuServe, and think I know how to correctly create mail off line and then send it later. I am sure I still have a lot to learn about the various commands and protocol expected.

I have acquired some interest group lists, but still do not know exactly what is available to me. Some articles directed at the Internet Novice would be appreciated.

By the way, a suggestion that many of your readers might appreciate, would be for you to select one or two key words as to the contents of letters to the editor, and start each letter with those words in bold or underlined as a separation point between letters (for readability sake). i.e. April issue, 1st letter: DELPHI COMMENTS, 2nd letter: DELPHI FEES, 3rd letter: DELPHI OMISSION, 4th letter: AMIGA BBS'S. etc.

Thank you, Ron Fandrick
76667.01377@compuserve.com

Ron:

A couple of anecdotes if you don't mind. I picked up a copy of a publication titled BYTE Magazine in the late seventies off a co-workers desk. I was a pretty hard core hardware guy in those days, and I was fascinated by this publication because after turning every single page in it, I found that not at ANY one spot did I have a CLUE what they were talking about. They seemed to know. But I certainly didn't. I don't mean I didn't catch every nuance of every story. What I'm saying is that the pages might have as well been printed in cyrillic. It was the leading edge publication of a new field called PERSONAL computing. I just got their latest issue on the Pentium microprocessor the other day. I've taken that magazine for OVER 15 years. It's not even owned by the same people. I don't even think it's owned by the people who bought it from the same people. I still get it. I still even read their "good" issues.

Second anecdote. We did some careful looking at the process people go THROUGH to get online. Most of them really get bogged down by the 8 data bits, 1 stop bit, No parity functions in their terminal programs. And ALL of them struggled with the modem initialization string required to get their software to talk to their modem well enough to dial the telephone at all. And uni-

formly, their response after going through it was, "if it takes THIS much effort to just get it to dial the telephone, THIS is just not for me."

The curious thing is, they thought they were 5% into it and it had already taken LOTS of effort. In reality, if you can get the modem to dial the telephone, you already know 90% of everything you'll ever need to know to LIVE online. I STILL get caught with the wrong initialization string with embarrassing regularity. They had already gotten through all the hard parts.

And now to tie them together. You sent your letter to the editor from CompuServe via Internet mail. That really IS all there is to it. Everything from here on out is finding neat places to send it to, and signing up for mailing lists to have them send it to you. There's a little bit of mailing list etiquette perhaps, and maybe you could learn about FTP e-mail servers. But you're there guy. >INTERNET:address is all there is to the Internet from CompuServe.

Now if I publish an article on that in this June issue, do you want to read about it again in July? August? September? We get new readers every month. Lots of them from CompuServe. At what point will you pale on the topic of "how to send Internet mail from CompuServe?"

By reading BYTE Magazine every month, I eventually got to the point where I understood it in places. Then in more places. Pretty soon, as I absorbed more of the material each month, I was finding some very INTERESTING information in it. And it held my interest for fifteen years.

I don't doubt for a minute that Boardwatch could be a bigger magazine, make more money, and have more readers if we would just take care of the new callers better. But they aren't NEW very long. And it isn't what I want. I want YOU reading Boardwatch 15 years from now Ron. Stay with us. You're through the hard part. And fifteen years from now, you may be the guy writing the software to connect my Intel 90996 computer to a vending machine in Omaha somewhere.

Jack Rickard

Jack,

I've got two requests for your circulation departments: 1) seal "Boardwatch" in recyclable plastic before delivery and 2) use recycled paper and soy-based ink. The additional plastic may "cross out" some of the ecological benefit of using recycled paper and soy-based ink. However, the benefit of not having a soggy issue of "Boardwatch" is more important! Maybe they don't make mailboxes like they use too. :) I don't know about the rest of your followers (this is beginning to sound a little Waco) but I would be willing to pay a little more for a dry, ecologically friendly magazine.

=|-) Steve
Stephen M. Durfee
71155.2711@compuserve.com

Steve:

This one is pretty simple. I DETEST plastic stuff wrapped around magazines. It's a nuisance. Wrap some plastic around your mailbox. If you get a copy damaged in transit, call Rob in our business office and he'll happily and in fact too cheerfully for that early in the morning mail you a handsome new replacement copy at no additional charge just because you're a Boardwatch subscriber and ipso facto one of our favorite people.

I don't buy into the enviro/pop-science currently in vogue in some quarters. I'm convinced at this point that recycled paper actually consumes more energy and resource than it saves. This is a perfect example of the clash between political correctness and science and it makes most of the environmental movement look comically foolish to me. And besides, I love to slay trees. Their agonized final whimper is music to my ears.

Ink is another matter. Some inks leave a chemical residue in the trash that is dirty. It won't likely "kill the planet" but it is slightly toxic and so constitutes filth and nast. We do use 100% soy inks in the printing of Boardwatch Magazine at this point. I doubt we actually have to pay much, if anything, more for it. Soybeans are pretty organic. I don't know for a fact that soy ink is entirely non-



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toxic, but it sounds right.

Jack Rickard

Dear Jack,

I used to run a BBS in Arvada Colorado, on the topic of environmental information. I was not sure what software to use at first I had finally landed on Telegard or Renegade. I had looked at many many different kinds of systems commercial and shareware. Things like Major BBS amazed me and I would love to run a system using that, but I wasn't sure how long it would last, and spending \$250 or something like that for BBS software wasn't worth it. I had looked at RemoteAccess, Searchlight, TBBS, etc. But I never found one that had ALL the features I wanted. You may think of Telegard or Renegade as a little tiny and lousy BBS package but I found it was excellent. It had options for all of what I may have wanted to change ANSI, text blocks, security levels etc. My real question is out of all the systems you have used and/or seen what do you think?

If you publish this letter I would ask readers to please send there feedback to me via InterNet mail at the address below I am interested in what you think.

Thank you,
Chris Reed
ab607@freenet.hsc.colorado.edu

Chris:

I think it's fine. I haven't found the BBS software that has all the features I want either. If I do, my list of features I want will be immediately upgraded, along with my software. I think it is important for the BBS to be the creative expression of the BBS operator, rather than of the BBS software author. I favor packages that allow that expression with the maximum flexibility - fully realizing that the power to create is the power to make ugly. But it also becomes a tool, rather than an appliance, and someone may do something beautiful with it. I've seen excellent bulletin boards done with meagerly endowed software, and some online horrors done with some of the top end packages. I doubt software selection is nearly as important as some believe.

And I have watched the agony of the congenitally confused who change packages each calendar quarter in search of the perfect program that will finally make their BBS work and the world dial into their system. I would urge you to focus on substance, not symbolism, and Telegard or Renegade will probably do fine. I would note that we have had some difficulty locating the author/current owner of Telegard. If you find him, have him call home. We'd like his contact information.

Jack Rickard

Jack:

All IBM and no Amiga make Jack a dull boy... or at least a very sheltered one. I refer to the letters column of your April issue where your reply to Bob Anderson was "Amiga BBSs? There are bulletin boards for Amigas?" Jack, tell me that your comment was given tounge-in-cheek. I can personally provide you with the numbers of over 200 Amiga Specific BBS systems around the world and I know that I have not even scratched the surface of the complete list.

With regard to the USENET access and offering the Amiga no recognition in your magazine, I agree fully with Mr. Anderson! We are being insulted through omission. I am the Sysop for the Tampa Bay Amiga Group and our BBS 'T-BAG' has been online continuously since early 1988 (6 years). That may not be a long time in the scheme of things, but, when you realize that the Amiga was released in 1986, I feel that we have something to brag about. We have supported USENET and UUCP for the past 3 years (YES, THREE YEARS) and carry approximately 85 newsgroups, we offer anonymous FTPing from our database, and also have the capabilities to carry FIDonet ECHOs if we wanted them. Our BBS software "C-Net Amiga V2.63+" offers QWK packets for offline reading and replies, realtime interuser conferencing on up to 24 nodes per CPU, online games, File and Message Bases, CD ROM singles & the new 6-Pack support, and much much more.

To summarize:

1. Amiga is a strong force in the personal BBS world.
2. USENET & FIDONET are nothing new, or difficult, to our platform.
3. If you think President Clinton's Compu-Serve mail box is full, wait till you hear from the Amiga community

Best Regards;

Pete Baker

SysOp and Net Administrator for the
Tampa Bay Amiga Group
pbaker@tbag.tscs.com

Peter:

No I was serious as a heart attack. And you're right, we've had over a half dozen e-mail messages on this one topic alone. By all means, personally send me the list of 200 Amiga systems, to whatever degree of scratching it is.

Given my sheltered life, perhaps you can explain to me how can you be "insulted by omission." Sounds like a lot of hard work to get there to me.

Jack Rickard

Dear Jack:

Once again, you messed up my Saturday. I had all kinds of plans for things to do today...rooms to clean up, garage to sweep, computer junk to attend to...and then your magazine came in the mail. Now here I sit at 4:00 in the afternoon...having once again read Boardwatch from cover to cover. The rooms, garage, and computers still untouched. May all of my problems be so big.

I just wanted to thank you for the outstanding quality of your magazine — again. In every issue, I have little post-it notes sticking out of one page or another. This time, the notes include an outstanding article from Lance Rose in the Legally Online column.

I'm one of the "kids" playing in the world of the "big boys." That is, I run a single-line BBS, using Wildcat, and do not charge for access...I guess this qualifies as the "hobbyists" setup. Bit by bit (ugh! Sorry!) I have added elements to this board as I am able...mostly from do-

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Also, with enhancements for the Copy-It! module for CD-ROM and DISK LAN based systems. This allows CD-ROM Access with ZERO TBBS impact on LAN based systems. Supports 65 lines and 10 tasks. Fileman now supports CD-ROM carousels and six-packs. Fileman also has enhancements for TapeMan Online Tape Backup System.

Some options require LAN setup, and Copy-It! software.

COPY-IT!

At \$109.00, Copy-It! is an option that allows CD-ROM and DISC SERVER operations on a LAN. Use Copy-It! with FileMan for GIF preview and Zero Impact File Transfer. Use With TapeMan for Disc Backups without taking down the board! Copy-It! can handle 65 lines with 10 concurrent tasks! Copy-It! also has timed and real time event processing for TMS 1.1 and TIC

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SYSMON

At \$79.00 SYSMON is a realtime remote control system designed to look and work just like the TBBS 2.2 console. SYSMON can be configured to handle up to 65 lines including the console. SYSMON can also be used by your regular callers as a system overview and alarm watch system. Many features including complete system usage logging, TBBS application launcher and a duplicate user logging and drop. Version 4.1 now supports EGA43 line mode to display all 65 lines on screen at once.

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GotoCommand

At \$72.00 GotoCommand is an amazingly configurable menu jump system. This program has a wonderful interface that can be used by ANSI, ASCII and the new RIP protocol. Give your users a single command to jump to any feature, ANYWHERE ON YOUR BOARD! Each command can be configured to any SDL style authorization. Commands can be made universal, or local to a single menu. GotoCommand also has the most unique marquee ability of any program on the market. Now make ANIMATED ANSI a part of your menus. GotoCommand also works with LiveWire to allow random messages at each menu. GotoCommand works in conjunction with TBBS hot keys, but allows your callers to use multiple key options.

BULLETS

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**This is just a small listing of
available software...
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nated and/or repaired parts, and the like. The latest addition is access to the world of Internet email and Usenet. Because I'm such a small system, the costs are still manageable, but I could not operate this thing as well without the information, ideas, and motivation that I get from your magazine. In fact, without the information and motivation I have gleaned from your "Internet" columns, I would never have persevered in working through the hassles of connecting something like a Wildcat based BBS to the Internet and Usenet. I am a high-school teacher, and the greatest benefit I have seen has come from some of my students, who have connected to a much wider world than they ever knew existed...and who have learned things from others online, people from other parts of the country, and the world, things that I could never have taught them in the classroom.

In light of that particular benefit, I would especially like to thank you for the articles about BBS and Internet connections to other countries. The notes from Arcady Khotin, the resources in your "Former Soviet Union" BBS guide, the Eastern European connections...all have provided avenues of communication to my students (and myself) which have been invaluable. That kind of information is not available in any other publication, and you are providing an invaluable service for people that you will probably never know.

Thanks again,
Glenn Snow
"Snow's Dorm"
glenn.snow@sdorm.org
Mundelein, IL USA
Glenn:

Thank you so much for the very kind note. Sorry about the Saturday, but as you pointed out, it's not lung cancer. Many people don't quite "get" the Internet part yet, as it sounds like a confusing form of X.25 or some other "networking" technology. What it really is is the end of the e-mail island problem with struggled with for so long - suddenly over. And with it comes the ability to REALLY correspond easily, cheaply, and almost immediately, with virtually anyone on the globe, in any country, about anything. Not through

television or other controlled news - but directly - individual humanoid type person to person. That is so broad, such a macro change in communications, it becomes vague until we bring it to earth with examples.

And it sounds like you're doing that with your school protege's in pretty expert fashion. Don't apologize for the "hobbyist" single-line aspect of your BBS. Most of the significant developments both technologically and socially have come from just that garden. And I suspect you don't really realize your role in an information future. I can tell you that at the highest levels of government, there is a dawning realization that the way to hook up schools to this proposed National Data Highway or National Information Infrastructure is through fairly plebeian BBS technology, and by enlisting the aid of the teachers that have really struggled with this thing with little support from any quarter - some, perhaps most of them, out of their own pockets.

But it's been a good exercise. We KNOW we can do a thing, at least badly, by throwing lots of money at it. The challenge is to do something effectively, and at minimum cost. Anyone who hasn't faced funding next month's phone bill and the next \$50 software acquisition out of thin air, as you have, isn't qualified to build a national network for education - in my estimation.

Jack Rickard

Greetings from India!

I am the SysOp of Live Wire! BBS. The first BBS in the Indian subcontinent and the only FidoNet node. I am interested in knowing more about Boardwatch as well as how I can subscribe to it from here in India.

I also believe that there is a conference called ONE BBSCON coming up in August. I would request you to kindly send me the details of form, fee, and itinerary if possible. Since I am a one man operation and India is very far from the US, could you also tell me if it is possible to get some funding support for my trip. I could possibly arrange to do the traveling on my expense

but would be very grateful if some waiver could be made on the stay and fee for the seminar.

Warm regards,

Suchit Nanda
SysOp Live Wire! BBS
FidoNet: 6:606/1
Internet: Suchit.Nanda@ f1.n606.z6.fidonet.org
Add: C-503, Eden-4, Hiranandani Gardens, Powai Lake, Bombay-4000076. INDIA.
BBS: 91-22-5787812 24hrs. 14.4K

Mr. Nanda:

Pleased to hear from FidoNet India. Actually, yes, there is a conference of bulletin board operators, Internauts, and those interested in those topics scheduled for August 25-29th, at the Broadmoor Hotel in Colorado Springs, Colorado. It's titled the Online Networking Exposition and BBS Convention, ONE BBSCON. Last year's event drew over 1000 participants from 14 countries. We expect to slightly more than double that figure on both counts this year. I don't expect we'll be offering any financial assistance to overseas visitors, but I will have all forms and information forwarded to you immediately.

I don't suppose there are any Amiga BBS there in India are there?

Jack Rickard

Dear Jack,

Thank you for bringing the Internet into my computer. Had I not picked up your magazine in February '93 off the newsstand I may have never learned how fascinating the net can be. One thing I have found an abundance of is Special Interest Groups (SIGS) and News Groups. Is there a listing or a way to find out about such groups on a global scale. Thank you and your staff for providing an excellent source of news and information.

Sincerely,

Kevin Donoghue
donoghue@donoghue.win.net
Donoghue International

2437 Grand Ave. Suite 273
Ventura CA 93003

Kevin:

Perhaps one of the most powerful aspects of the Internet is the development of topical communities via the mailing list function. Mailing lists are bulletin boards without the software. Deceptively simple in operation, anyone can send a message to a single mailing list address, and the message is "reflected" to everyone on a list of addresses. And the members of that list can of course respond, and the responses are of course reflected, basically forming a discussion group. Even better, if you have an Internet e-mail address ANYWHERE, you can participate. List members might be on CompuServe, Delphi, Boardwatch BBS, or anywhere else on the planet reachable through the domain name system.

The concept of these mailing lists is so popular, that there are literally thousands of them. SRI International does actually make an attempt at cataloging them with descriptions and so forth, and it is fascinating reading. It is called the List of Lists, and there are several ways to obtain the list.

If you have ftp access to the Internet, enter ftp ftp.nisc.sri.com (this corresponds to a numeric IP address of 192.33.33.22. You will be connected to the system and receive a login prompt. Enter ANONYMOUS at the prompt. It then asks for a password. Enter YOUR e-mail address as the password. Once on the system change to the appropriate directory by entering cd /netinfo. Then you can retrieve the file with a get interest-groups command. Finally, enter quit to logoff.

For e-mail access, you can send an e-mail message to mail-server@nisc.sri.com. On the first line of the message, enter the command send netinfo/interest-groups. Note that as of mid-April, the file was 1,121,268 bytes in size. If you are on a system that charges for e-mail by the byte (aside from changing services) you might want to be aware of this. The file lists fairly detailed information on literally hundreds of mailing lists.

*SRI has actually had the list of lists printed in book form, authored by Edward T.L. Hardie and Vivian Neou and Prentice Hall is the publisher. The book is titled **Internet Mailing Lists** ISBN 0-13-327941-3. Contact PTR Prentice Hall, 113 Sylvan Ave., Englewood Cliffs, NJ 07632; (201)592-2863 voice or (201)592-2249 fax.*

Basically, if you can't find a mailing list topic on this list that interests you, you aren't interested in much. There is a list for everything. Enjoy.

Jack Rickard

TELEBITS

RUMORS AND FACTOIDS

Microsoft has proclaimed that there are now some 25 million Microsoft Windows installations and some 60% of new PCs purchased come with Windows.

Cable TV giant Tele-Communications, Inc. has announced a \$1.9 billion four-year investment to run fiber to the homes. The plan ostensibly will bring over 500 cable channels to the television, but many speculate it may also be a ploy to be a player in the National Information Infrastructure. Fiber is fiber, and many claim it's good for you. TCI thinks so too.

eSoft, Inc has put a new option module into beta test titled InterChange. It allows sysops to script OUTBOUND calls to fetch other files, connect to other services, or port out to other machines. Ostensibly, it could be used to link systems nationally, or allow operators to develop menu items that really ported out to other systems. Rumors abound regarding other "secret stuff."

The Clinton administration has caused a bit of a furor by coming out in favor of government control of encryption. The theory is it is ok to have secrets, as long as it's not really secret from the government. The first charge is a chipset termed CLIPPER used to scramble telephone conversations. AT&T will make telephones using the chips, and the federal

government will supply the first big order. The system calls for a two-part digital key with each part deposited with an "escrow" agent, probably within the government. On appropriate court order, the escrow agents would each surrender their piece of the encryption key, and the FBI or other law enforcement could then perform wiretaps. The plan is to extend this concept to data communications as well. The concept originated with Silvio Micali, professor of computer science at MIT in Cambridge. He calls them "fair crypto systems." Both the Electronic Frontier Foundation and Computer Professionals for Social Responsibility have come out strongly against the proposal.

Also in Washington, Congress is holding hearings on who should build the NREN/Internet/National Information Infrastructure/National Data Superhighway. Predictably enough, a strong move is on for the building of the network to be done by private interests, rather than government. And past weeks have witnessed a parade of regional Bell operating companies, cable companies, cellular companies, all snuffing up to the trough. While all have spent the past ten years noting there was no market for such services, this year they all seem to have invented the concept, and their particular approach (cable, cellular, telephone, whatever) is actually the way to do it.

What is really being debated is not who will build it. The government doesn't build anything. Private companies will of course build it. The debate is over who will fund it, who will control it, who will own it, and who will decide who gets charged what to use it. Industry already has the EFF and other groups singing the "private" song pretty loudly. If they can somehow persuade the government to go along with the usual devils trade, they will fund it, the government will bless it, and they can charge you whatever they like for access to it. This is how every good idea out of Washington gets sold into prostitution.

ONE BBSCON BOARDWATCH 100 READER'S CHOICE CONTEST

The **Boardwatch 100 Reader's Choice Contest** had received **9042** votes as of April 16th, with two and a half months yet to go before the contest ends June 30th. Boardwatch reader's are not shy about casting a ballot for their favorite BBS, and while we are very nearly running the front range office supply stores out of fax paper, we're confident that the pool of respondents will make this year's contest more representative than ever.

The survey results haven't changed much as the ballot numbers have climbed. The male/female breakdown has crept a bit to **88.29%** male participation. Some **55%** of respondents do use Microsoft Windows. Callers claim an average of **67** calls monthly and further claim to have been online some **52.08** months. Some **33.57%** of them have installed a second telephone line to dial BBSs. As to age, **76.49%** are age **20 to 49** with **30-39** still comprising the most popular age to be with almost exactly **30%** of the total.

Ballots received will be entered into a drawing for one of six high speed modems to be announced at the **Online Networking Exposition and BBS Convention** August 25-29th, 1993 at the Broadmoor Hotel in Colorado Springs. ZyXEL USA, U.S. Robotics, and Hayes Microcomputer Products have each contributed two of their top of the line high-speed modems to the contest.

As to modem use, callers are using more Hayes modems than anything else, but not by much. Top five models were:

Hayes	994	10.99%
U.S. Robotics	930	10.29%
Zoom Telephonics	705	7.80%
Practical Peripheral	504	5.57%
Supra	433	4.79%

Nearly **40%** of voters used one of these five brands. But our survey indicates that among this group some 209 different brands are in use. With regards to speed:

300 bps	6	a bit
1200 bps	232	2.57%
2400 bps	4847	53.60%
9600 bps	1081	11.96%
14400 bps	2635	29.14%
19200 bps	269	2.97%

Some of the caller base has gone to 9600 and above with some **238** balloteers incredibly still dialing at 300 or 1200 bps.

With regards to terminal software packages, things are a bit more focused. **Procomm** remains the market leader with **2746** of those voting claiming this is their window on the world or **30.37%** of those swinging a modem. **Telix** is next with **1944** balloteers claiming this as their software for a **21.50%** market share. And **Qmodem** was the program of choice for some **1447** faithful for a **15.95%** share of the online world. These three programs account for **67.82%** of the market for terminal programs.

Response to the ONE BBSCON seems to be better than expected as well. The convention is designed for a maximum **2000** attendees at the August gathering of BBS operators, Internauts, and networking aficionados. In last year's period leading up to the show, almost exactly **10%** of the final registration was signed up by April 1st. This year, as of April first, some **278** paid registrations had been received. If the registration curve holds true, this would seem to indicate a final turnout of some **2750** attendees. If so, some will be riding on the shoulders of others in the Broadmoor Hotel.

And the reception to the ONE BBSCON concept has been very good among vendors. The activity at the vendor exhibit area was surprising last year with many vendors offering show specials and discounts that tempted the attendees to break into a buying frenzy. Modem vendors have been particularly early in signing on with Hayes, U.S. Robotics, ZyXEL, and Supra returning for another round and Practical Peripherals, and AT&T Paradyne signing up for a first appearance - all toeing in for an early shot at a booth space. Galacticomm, eSoft, Mustang Software, and Clark Development anchor the four corners of the main exhibit area again this year. MMB Development and Coconut Com-

puting will both return to represent UNIX BBS. But Remote Access, Telix, Celerity, Robo-Board, and D'Bridge will be making a first appearance. **Online Access**, a magazine that has introduced a BBS edition this year, will also be appearing on the main floor. And a whole bevy of vendors are planning new product introductions this year - mucho discussion of the Remote Imaging Protocol. As of mid-April, 67 of the 81 available spaces were taken on the exhibit area in International Center. But plenty of space remains in Colorado Hall, which features the smaller 6 X 8 foot table top displays.

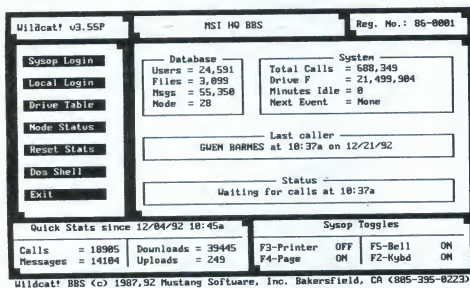
With regards to speakers and tracks, the Internet track is shaping up beautifully, with Dr. Vinton G. Cerf, who actually pioneered the TCP/IP development while a graduate student at UCLA, will be the featured speaker there. Approximately 15-18 Internet sessions are planned. Bernard Aboba, author of the BMUG guide to Bulletin Boards and Beyond is serving as den mother superior for the Internet track. Our own Bill Gram-Reefer has put together a series of Macintosh sessions. The How to Profit with a BBS, the Jack and Phil track promises to run end to end as well with better sessions on business plans, credit card accounts, and so forth. John Coates and Cliff Figallo will talk a bit about the community building aspects of an online service. They shepherded the Whole Earth Electronic Link from startup until last year. Phil Katz will do a session on data compression. Norman Gillespie will cover Satellite Communications. A number of "success roundtables" will be presenting tips on how to get there with luminaries from some of the largest bulletin boards in the country coming to explain how it happened. Ward Christensen, author of the first BBS software package and the XMODEM file transfer protocol, has volunteered to do a session. Columnist John C. Dvorak will be returning to present his popular Dvorak Awards for Excellence in Telecommunications.

In any event, ONE BBSCON shapes up pretty safely as the most exciting gathering of BBS operators we'll attend this year. Registration is priced at \$250 until August 1 and \$325 afterwords.

Professional Bulletin Board Software

WILDCAT! BBS

Wildcat! leads the pack when it comes to features, performance and innovation. MSI was the first to include offline mail reading software in a BBS package, the first with MHS support, and is the only company to offer NetWare bindery access and a multiline product that runs eight lines with separate DOS sessions on a single PC. There's a Wildcat! version for just about any application from a single-line neighborhood BBS to a wide-area network system.



Check out these features!

- XMODEM, YMODEM, ZMODEM, YMODEM-G, 1K-XMODEM-G and KERMIT.
- Multi-line operation of 250 nodes, up to eight on one PC.
- DOORS
- 1,000 message conferences, file areas and security levels.
- Full-screen message editor with quoting.
- File attachments to messages.
- Text can be uploaded into a message.
- File marking while viewing for later download.
- Operates with virus checking software.
- Full sysop maintenance when system is taking calls.
- 1,000 configurable events per node.
- Relational links between the message area, file area, and user databases, allowing the sysop to access related records.
- Enhanced support for CD-ROM files and changers.

We have the best value in BBS software. You don't have to buy an add-on mail door or add a program to make it do simple Zmodem downloads! The popular remote control program DOORWAY is even included FREE with the IM version of WILDCAT! You not only get the most for your money when you make your initial purchase, but you get full credit for your software investment when you upgrade it to support extra lines. We appreciate our customers.

Check out these prices!

The Wildcat! Single Line release supports one incoming phone line on a single PC or network workstation. It also lets you run your BBS in the background under DESQview! **\$129.00**

A great entry-level BBS or office system, **Wildcat! Multiline** handles 1-10 incoming lines. It can operate on a LAN where all ten lines can be dial-in or local access. Installed on a single PC under DESQview, Wildcat Multiline is able to handle up to four incoming lines plus local access. **\$249.00**

The Professional Multiline release supports 1-250 incoming lines or local LAN connections, and has all the same features of the other systems, including DESQview support. **\$499.00**

The Intelligent MultiPort (IM) version is a special release of WILDCAT! that communicates only with the DigiBoard Intelligent Multi-Port card. Using WILDCAT! IM you can connect up to eight external modems via an octopus cable to a single 486 using the multitasking program DESQview from Quarterdeck Office Systems. Multiple DigiChannel PC workstations can be linked together on a LAN to provide 16, 24, or even 32 or more lines since the IM version supports up to 250 connections. **\$799.00**

If you haven't tried Wildcat! you haven't experienced the best in BBS telecommunications today. **For a free copy or our Test-Drive version, call 1-800-999-9619 and ask for offer #WB100.**

See Us At



COMDEX/Spring '93

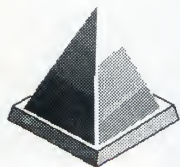
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BOARDWATCH MAGAZINE



1993 READER'S CHOICE BBS CONTEST

Boardwatch Magazine is sponsoring a contest to find the 100 most popular bulletin board systems in North America - and the ONE BBS most popular among callers. The contest will run from January 1, 1993 through July 1, 1993. Winners will be announced at the **Online Networking Exposition and BBS Convention (ONE BBSCON)** held at the **Broadmoor Hotel in Colorado Springs Colorado, August 26-29, 1993**. The Boardwatch 100 list will be published in subsequent issues of Boardwatch Magazine and distributed in electronic form world-wide.

PRIZES FOR BULLETIN BOARD OPERATORS

1ST PRIZE: The BBS system receiving the largest number of valid ballots will be named the most popular BBS. A trophy will be awarded to the top BBS at the **Online Networking Exposition and BBS Convention (ONE BBSCON)** held August 26-29th, 1993, at the Broadmoor Hotel in Colorado Springs, Colorado. Additionally, the winning BBS will receive air fare, hotel accommodations and registration at ONE BBSCON for the primary BBS operator as the guest of Boardwatch Magazine. Additionally, the system will be featured on the cover of Boardwatch Magazine with an accompanying feature length story about their system and a free full-page black and white advertisement in Boardwatch Magazine for a period of three months.

TOP TEN: The ten most popular bulletin boards selected by the voters will each receive an award trophy at on their system in Boardwatch Magazine, inclusion in a special top ten BBS listing in the magazine, and a free quarter-page black and white advertisement in three successive issues. Additionally, they will be listed in the Boardwatch 100 BBS list.

TOP ONE HUNDRED: The 100 bulletin boards receiving the most votes will each be listed in the Boardwatch 100 readers choice BBS list. This list will be published in Boardwatch Magazine and freely distributed electronically on thousands of bulletin boards world-wide.

IN CASE OF TIE. Positions for which an identical number of votes are received will be determined by point value established by the date stamp assigned to each received ballot. Time/Date stamp values are accumulated for all votes and a cumulative score assigned to each BBS based on date of receipt of ballots. Votes receive a date stamp value between 1 and 180 based on the day of the contest the vote is received. System with lowest (earliest) cumulative date stamp score will prevail in event of tie.

PRIZES FOR VOTERS

All valid ballots submitted by voters will be entered in a random sweepstakes drawing. As of the opening date of this contest, prizes include two U.S. Robotics Courier Dual Standard 16.8K Modems, two Hayes OPTIMA 14400 + FAX 144 modems, and two ZyXEL U-1496 14,400 bps modems - and more are on the way. A minimum of six valid ballots will be selected from all entries and each will receive a free modem - from the most popular modem manufacturers in the world.

RULES FOR CALLERS

Each voter can vote once, for a single bulletin board system. Each ballot must be fully completed, and individually mailed by each voter. We will verify ballots as necessary. There are three ways to vote:

1. Complete this ballot and mail to: BOARDWATCH MAGAZINE, READERS CHOICE BBS CONTEST, 5970 South Vivian Street, Littleton, CO 80127

2. Complete this ballot and FAX to (303)973-3731.

3. Or, dial the Boardwatch BBS at (303)973-4222 and complete the online ballot provided on the main menu.

Balloting closes at 23:59:59 on June 30, 1993. Last year it ended at midnight on July 1 and caused all manner of grief and confusion so we're cutting a second off of this year's contest.

This contest is not limited to Boardwatch Magazine subscribers, and no purchase of anything is required to participate in this contest. Reasonable facsimile's of this ballot are acceptable, so long as all specified information is included.

We held this contest during 1992 and it generated 11,152 votes by the close of balloting for some 1250 different bulletin boards. The TOP system received about 450 votes. Your individual vote can have a tremendous impact on the outcome of this contest. Further, the odds of winning a modem in last years contest, were 1 in 1394. You won't get those odds in the lottery.

TITLE OF BBS YOU VOTE FOR AS THE BEST: _____

PRIMARY BBS ACCESS TELEPHONE NUMBER: _____

VOTER NAME: _____ VOICE PHONE NUMBER: _____

STREET ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____ COUNTRY: _____

PRIMARY COMMUNICATIONS SOFTWARE YOU USE: _____

PRIMARY MODEM MANUFACTURER AND MODEL: _____

HIGHEST SPEED YOUR MODEM SUPPORTS: ☐ 1200bps ☐ 2400bps ☐ 9600bps ☐ 14400bps ☐ 19200bps

DO YOU USE MS WINDOWS (Y/N): _____ DO YOU HAVE A SECOND TELEPHONE LINE FOR USE WITH YOUR MODEM (Y/N): _____

TOTAL CALLS YOU MAKE TO BBS PER MONTH: _____ WHEN DID YOU MAKE YOUR FIRST BBS CALL (MM/YY): _____

AGE: _____ SEX (M/F): _____ PROFESSION: _____

SIGNATURE: _____ DATE: _____

Broadmoor International Center

To Colorado Hall
Rear Lobby

1	2	3	4	5	6
eSoft TBBS			Quarterdeck Office Systems		Software at Work
12	11	10	9	8	7
		Index Systems	Advance Systems Research		

13	14	15	16	17	18
SFNet				PC Info Group	
24	23	22	21	20	19
Digital Dynamics			Online Access	Telegrafix RIP	

21

25	26	27	28	29	30
Durand Comm	ProStar Software	Galacticomm Major BBS		deltaComm TELIX	
	Supra Modems	34	33	Business BBS	Boardwatch Magazine
36	35			32	31

37	38	39	40	41	42
Practical Peripherals					
48	47	46	45	44	43
MMB Develop.	DigiBoard.	Digicomm Systems			Mosaic Press D'Bridge

45

49	50	51	52	53	54
Microcomputer Products	Hayes	Coconut Computing		AT&T Paradyne	
60	59	58	57	56	55

61	62	63	64	65	66
ZyXEL USA		National Shareware Library	Hamilton Telegraphics	Logon America	Clark Development PCBoard
72	71	70	69	68	67
Boardwatch Magazine	U.S. Robotics				

73	74	75	76	77	78	79	80	81
Mustang-Wildcat!/QmodemPro				ONLINE Comp. Resource	TRANSCAN Digital Publishing	Remote Access		

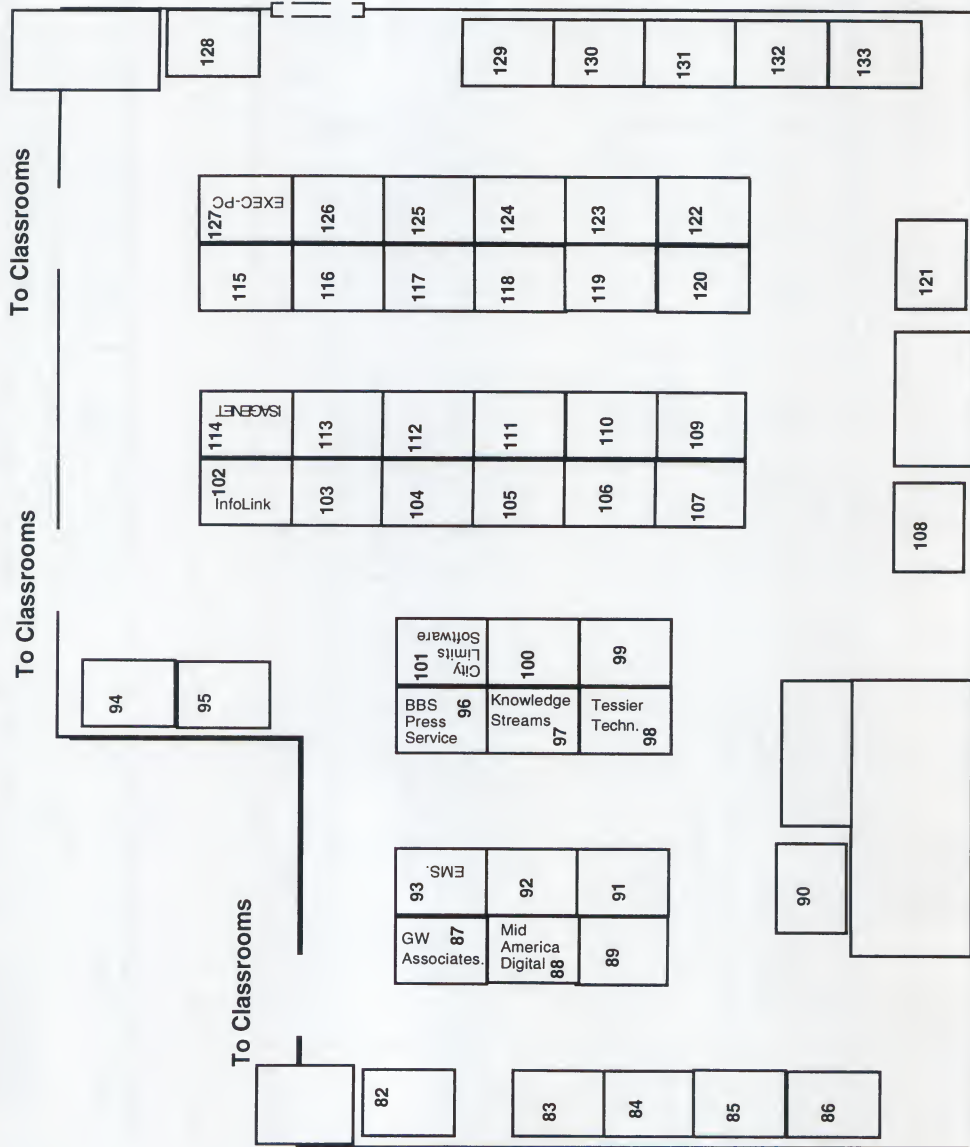
Total 81 10X10 Exhibit Units

Foyer
To Broadmoor Hotel

As of 4/12/93

Broadmoor Colorado Hall

52 6X8 Exhibit Units



For more information, contact the ONE, Inc. office at 4255 South Buckley Road, Suite 308, Aurora, CO 80013; (303)693-5253 voice; (303)693-5518 fax; (303)693-5432 BBS.

US ROBOTICS NEW MCKINLEY ARCHITECTURE MODEMS SHAKE UP MODEM MARKET

As modem prices have dropped over the past year, U.S. Robotics has held its position as one of the premium modem manufacturers, but a number of companies have beaten their time on price - to the point where many BBS operators and callers alike were asking "is it worth the extra price" with negative results.

In March, U.S. Robotics moved to quash the debate with a new modem architecture for their Sportster line they call McKinley. This is a new low chip count modem that we found a surprising performance power house.

The top of the Sportster line is now the **Sportster 14,400 Fax**. This external modem features CCITT v.32 bis connections at up to 14,400 bits per second, as well as V.17 fax at 14,400 bps. The new



U.S. Robotics Sportster Internal Model

architecture features USR's proprietary Digital Signal Processing (DSP) technology using Texas Instruments chips. The result is a modem package that is physically much smaller than the previous Sportster model, with better performance. The list price of this modem is **\$299**, but we are already seeing it on

the street for as little as **\$229** - essentially going head to head with the discount modems.

We found the external model worked flawlessly at the highest 14.4 kbps speed. Fax operation was predictable and smooth. The smaller package made it an attractive desktop addition - rather than something you have to find a "place" for. It is almost small enough to function as a portable.

But the internal circuit card for IBM compatible PCs was what caught our eye. While we normally have a bias for external modems, where we can see the lights, flash, sizzle, and in some cases smoke, that accompanies modem testing, this internal model has some interesting features. It is essentially the same architecture and features as the external model. But the lowered chip count make this one of the smallest half-card modems we've ever tested.

And the modem had some conveniences we found irresistible. Most internal circuit cards have jumpers allowing you to set various configuration options. They tend to be marked plainly as WB3-7IRQDEVOI with settings for A B 5 9 and &. And there will be another J-11 jumper bank with a similarly evident



U.S. Robotics Sportster External Models

series of options. It's all explained in the book.

The USR modem has two jumper banks, plainly marked **COM** (1,2,3, or 4) and **IRQ** (2, 3, 4, 5, or 7) offering a very flexible configuration most anyone can figure out in a couple of minutes. There is the usual USR bank of dip switches that do require you to refer to the book, but if they are all right with USR, they're ok with us. We didn't change the factory defaults, and the modem didn't seem to mind.

The biggest advantage to the internal modem is that you don't need to deal with serial ports. It has the 16550 Universal Asynchronous Receiver/Transmitter (UART) built in, and allows you to lock the port at an impressive 57,600 bits-per-second. The other big advantage is this model features a list price of **\$259** and should be available for less than **\$200** on the street. Although the model we tested was clearly marked a beta unit, we found no anomalies and enjoyed excellent performance. For budget-minded BBS callers - USR is back. U.S. Robotics, 8100 North McCormick Blvd., Skokie, IL 60076; **(800)-DIALUSR** voice; **(708)982-5092** BBS.

SOFTWARE

TELEGRAFIX AND THE REMOTE IMAGING PROTOCOL - BIRTH OF A NEW ONLINE GRAPHICS STANDARD

The year 1993 will likely be viewed as an extremely exciting time of almost violent technological development in the BBS community. The various BBS platforms are making sudden gains at reaching out across the planet in ways previously difficult, via the Internet, LANS, expansion of existing BBS networks, and interoperability with messaging software on many fronts. And with higher modem speeds offered by the modem vendors in recent years, attention has turned to developing

some sort of graphics presentation format beyond the simple ANSI graphics of the past.

More importantly, and we like to think partly as a result of the Online Networking Exposition and BBS Convention, we're seeing a level of cooperative development between communication software vendors beyond anything previously achieved. The area where this shows up this year is in developing a more graphic interface for the BBS community. It has happened with amazing rapidity, and for callers to online services in the future, it augurs for a much easier world to navigate.

As we enter the summer of 1993, a number of pretenders to the throne of the graphics interface for the IBM compatible online world appear to be vying for dominance - all a little bit broken at this early stage. But they each offer some attractive features, and some promise for the future. And each has gathered it's apostleship of advocates - some of which have gone beyond reason in heralding the wonders of their own favorite and the poor showing of the brand X model. It's all terribly American, and quite in keeping with the history of the online community.

The oldest of the formats is the **North American Presentation Level Pro-**

tocol Syntax or **NAPLPS**. NAPLPS is a mature, published international standard available from **ANSI** (American National Standards Institute) as document # **X3.110-1983**. We covered NAPLPS in an introductory fashion in our December 1992 issue.

The newer entry in the graphics sweepstakes was developed by a company in Huntington Beach California titled **TeleGrafix Communications, Inc.** It is termed the **Remote Imaging Protocol**, or **RIP**. While actually a proprietary protocol, the authors are aggressively seeking a defacto standard status by widely describing the RIPscript protocol itself, and have contributed a significant terminal program to the public domain.

TeleGrafix is a group made up of mostly ex-AST employees. Jeff Reeder, Mark Hayton, and Jim Bergman formed the company. The titular CEO is Jeff Reeder. Reeder has quite a bit of experience in graphics for personal computers - his first programming effort was a graphics Rubick's Cube program for the Apple II. He also wrote a 3D CAD package for the Amiga 1000. He acted as sysop for AST Research's Major BBS support system and assisted Stephen Grande with the MEDCOM BBS, a very popular California BBS.



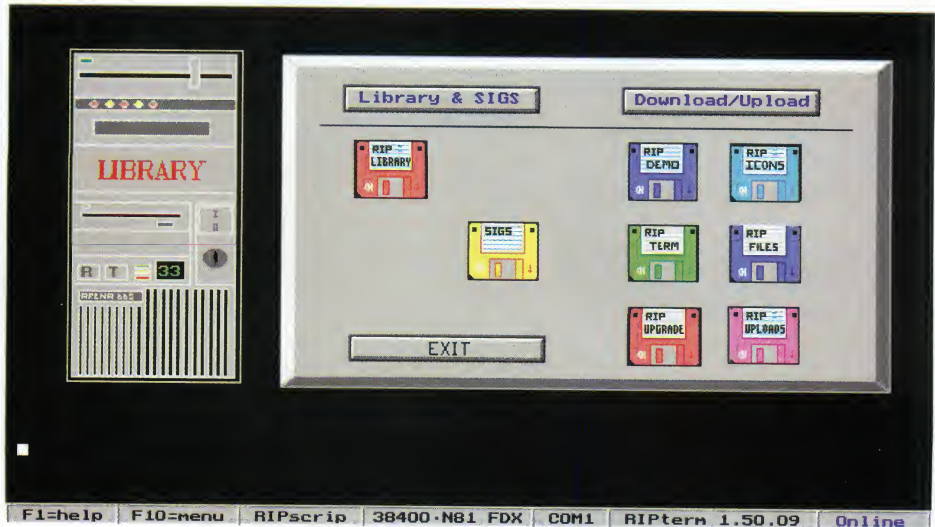
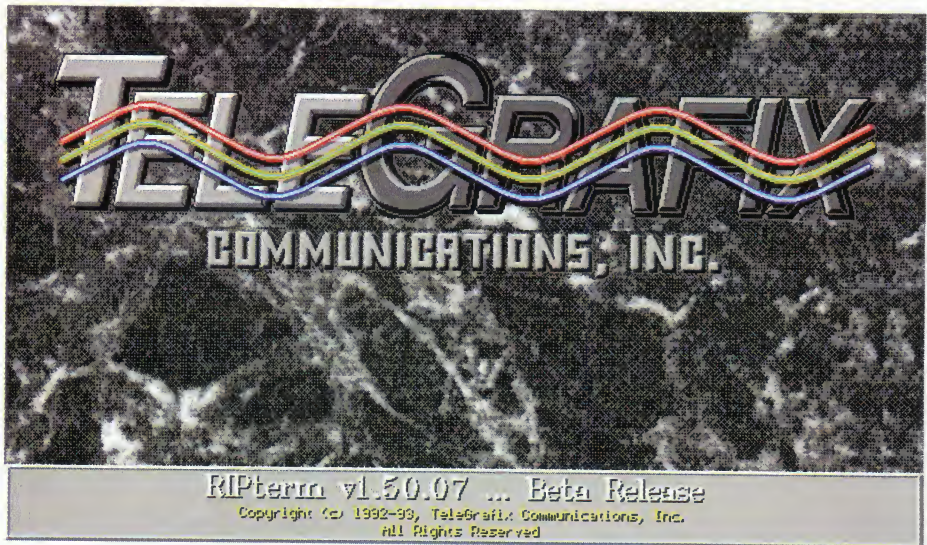
TeleGrafix - Mark Hayton, Jeff Reeder and Jim Bergman

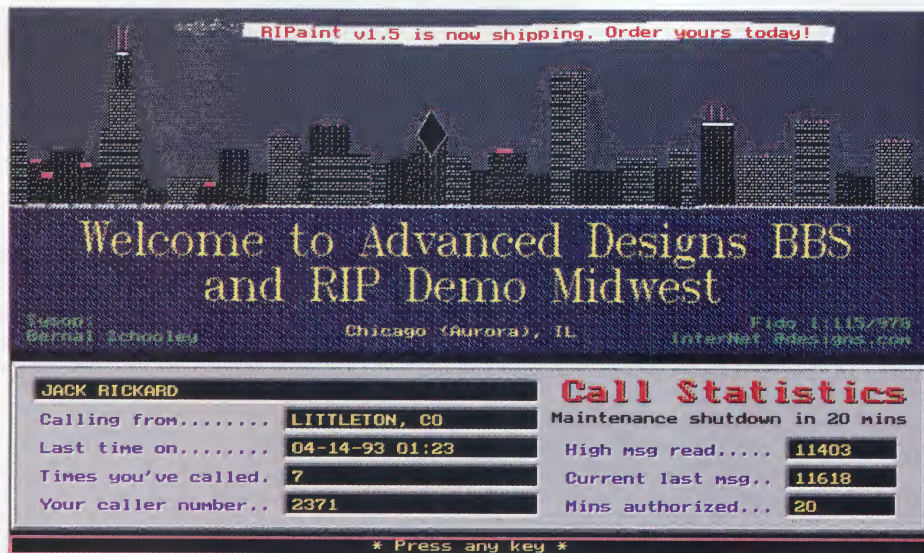
RIP is a protocol to convey graphic and to some degree operational information in an efficient script language between the caller's computer and the host or BBS system. In many ways it takes a very different approach in that its strong element seems to be the use of a type of icon-based communication "object". These icons are actually drawn on the screen of the caller as a button, action bar, or a Windows-like icon. Callers can click on an icon and cause it to transmit a text string command to the BBS. While this sounds pretty magical, it's actually quite simple. Place an icon of picture of a file cabinet on the screen. If the user clicks on this icon, it transmits the string FILES out the serial port or F/carriage return or whatever this particular BBS uses in ordinary keystrokes to access its file area. To the caller, it looks like they clicked on the file cabinet and moved to the file area. To the BBS, it looks like it received pretty normal keystrokes.

But these iconic objects can also RECEIVE commands from the BBS directing them to new positions, and even reprogram them to emit different string commands when clicked. In this way, they act as communication agents interacting with the BBS. And the BBS can further define "mouse regions" that the user can click on to select NON-iconic options - a bulletin number for instance.

The products that implement this include **RIPaint**, a \$200 paint program, **RIPterm**, the freeware terminal program, **RIPDraw**, a \$50 drawing program, and a text file describing the RIPscrip protocol. Two \$50 toolkits, **RIP2C** and **RIP2PAS**, provide aids to development in C and Pascal respectively.

The battle between NAPLPS and RIP will be won or lost on the caller end of the communications transaction - the terminal program. One of the advantages RIP has over NAPLPS is this RIPterm terminal program. RIPterm is first and foremost free. No shareware registration or payment is required and BBS operators adopting RIP can make it available to callers. Unlike many of the special purpose terminal programs used by Prodigy and other NAPLPS

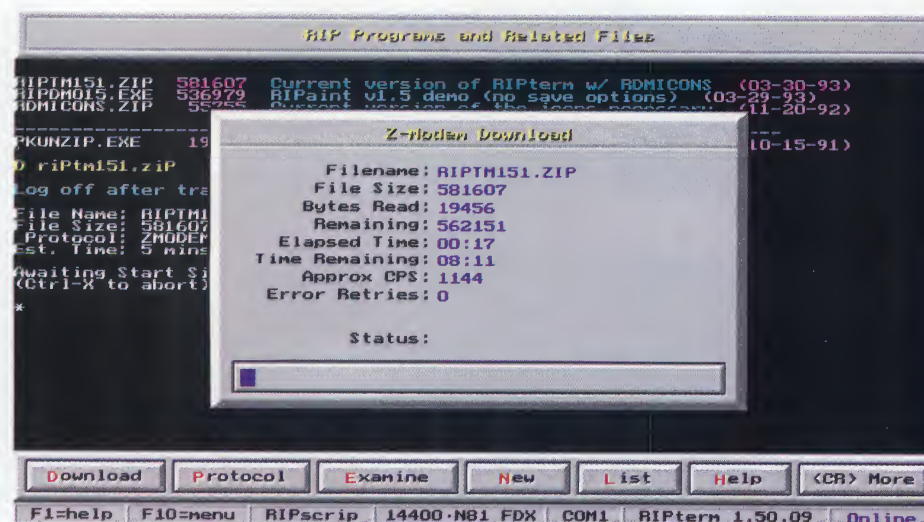
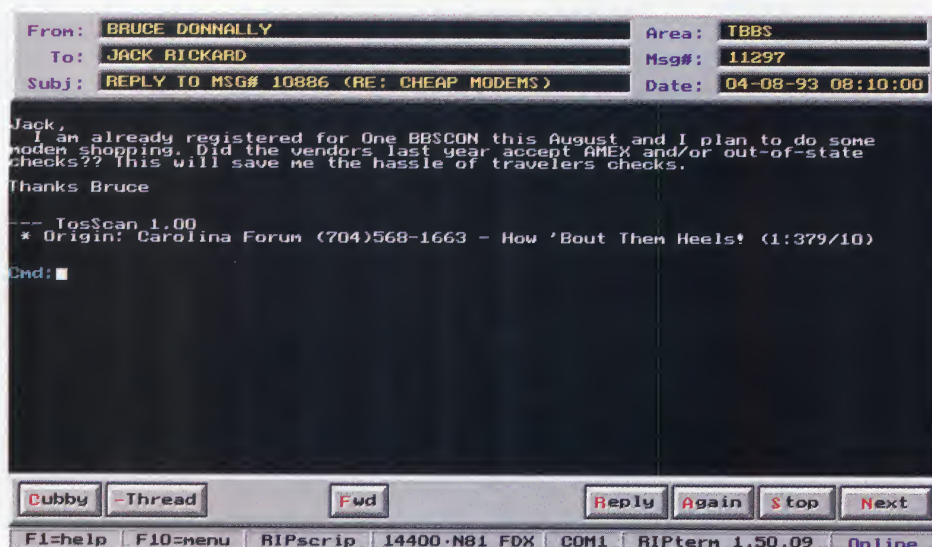




based systems, RIPterm is reasonably full featured. Actually, it's quite full featured with XMODEM, YMODEM, and ZMODEM file transfer protocols, scroll back buffer, the usual assortment of modem and communications port parameters, keyboard macros, dialing directory, and so forth. They use Borland's BGI graphics tools for the display elements, and Greenleaf's COMMLib for most of the communications functions. We found version 1.50.9 to have a few rough edges and we found ourselves quite suddenly disconnected from Cyberspace a couple of times. ZMODEM uploads are a bit quirky yet. And the screen would clear, or partially clear, as it's own internal mood struck. But the program was really pretty charming and we repeatedly found old ALT key combinations we were accustomed to from using Procomm, QmodemPro, or Telix work as expected in RIPterm. It is NOT simply a one-dimensional graphics interface program as we've seen quite a bit of lately. It really does fill the bill as a full featured terminal program.

TeleGrafix first introduced RIP at the Online Networking Exposition and BBS Convention held in Denver last August. They used the opportunity to begin campaigning among other software vendors to incorporate RIP in communications products and they've very professionally stayed in contact with these people since then. The list of software vendors signing on for a trip on the RIP ship is growing rapidly, and with this attention to the political end of launching a new standard, success looms close.

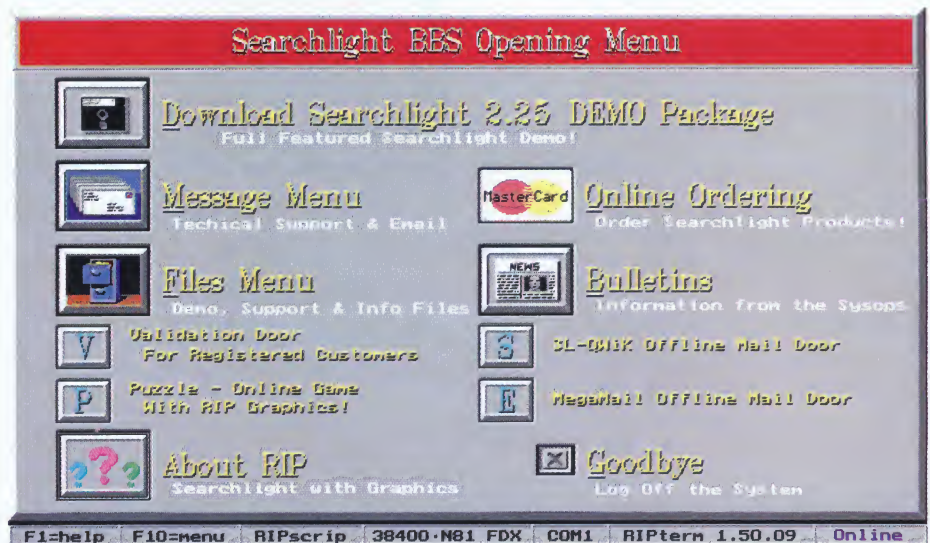
The changes required at the BBS end are reasonably trivial to achieve some RIP capability - more difficult to truly take advantage of the protocol. The RIPscrip files are composed of 7-bit ASCII text that is transmitted out the communications port to the caller - not terribly different from displaying ASCII text or ANSI graphics. But beyond a crude level, it becomes more difficult. Although we dialed a number of systems, we found none that wasn't riddled with little "goofs" in the implementation at various points in the BBS. This type of interface does actually complicate the design func-



tion of the BBS operator. But the results are generally pretty good.

Searchlight Software was among the first of the IBM world to incorporate a form of RIP support in version 3.0 of their Searchlight BBS software that they released at the Northern Lights Conference in Toronto in March. Their demo system at (516)689-2566 is showing the RIP flag pretty strongly. Interestingly, the Searchlight implementation did not really require you to select RIP as an option. It appeared to auto-detect the RIP capability in our RIPterm program and launched right into RIP. As in all the bulletin boards we reviewed, in some places we could click our way around quite well with the mouse on various icon buttons, and at others, inexplicably we would be back at the keyboard. The transition was rarely smooth. But the novelty of dealing with a BBS by mouse was endearing. And the Searchlight main menu is really quite something to see. Further, they've created some userlog maintenance tools for the sysops eyes only that use RIP - again to good effect. The company plans an even more integrated version 3.5 for release at ONE BBSCON this year that promises to make a RIP board as easy to run as ASCII or ANSI. Searchlight Software, PO Box 640, Stony Brook, NY 11790; (516)751-2966 voice.

Galacticomm Inc. is currently beta testing a version 6.1 of the **Major BBS** with RIP capability, and campaigning pretty hard for RIP as an online standard interface. And the level of integration here is pretty impressive. Galacticomm's configuration program actually allows the BBS operator to define a function as RIP compatible and shells them out to the RIPaint program to design it. We dialed TeleGrafix's own **ARENA BBS** at (714)840-3520. It uses Galacticomm's The Major BBS and features what had to be the most ambitious display of RIP graphics we've yet seen. But it was here we began to run into some of the drawbacks of RIP. First, each BBS can design their own icons using the RIPaint program. And since they can, they do. And since they do, you have to have a copy of THEIR icons for the system to work properly. After dialing about four



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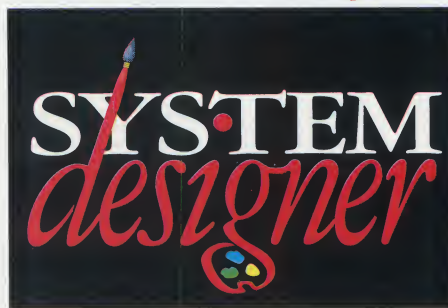
Advanced Project Management

System Designer is driven by a sophisticated project management module that seamlessly integrates the entire development process and eliminates the need to manually manage the hundreds of files needed to create and maintain a complex TBBS application. Project Manager automatically tracks the status of your menu designs, determines where these files should be stored and instructs the code generator which menus to include in the final SDL output. Project Manager leaves you with more time to be creative and less time being a menu design file manager.

How Does System Designer Generate TBBS Applications?

The core of the System Designer development environment is **Designer**, an advanced free-form menu development module that enables you to design separate ANSI, Black

Introducing...



and White and ASCII versions of the same menu. Each of these menu versions resides simultaneously in memory and can be instantly accessed with the touch of a key.

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System Designer makes design and update chores much easier. It appears to be mandatory for serious TBBS system design work! — BOARDWATCH MAGAZINE, FEB. 1993

of the screen you wish to display to your BBS callers. Next, define these marked menu areas as objects. Menu areas defined as objects can be assigned characteristics that make them behave in a number of ways – from simple object types that only display text to the caller, to sophisticated TBBS menu entries that are seen only by callers with the appropriate privilege and access level settings.

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Generating SDL Code

Repeat the menu design and object definition process until each menu in your TBBS application has been created. Next, direct Project Manager to initiate the code generation process. In a matter of seconds System Designer's code generator will automatically interpret your menu designs and create rock-solid SDL code ready to be compiled and executed.

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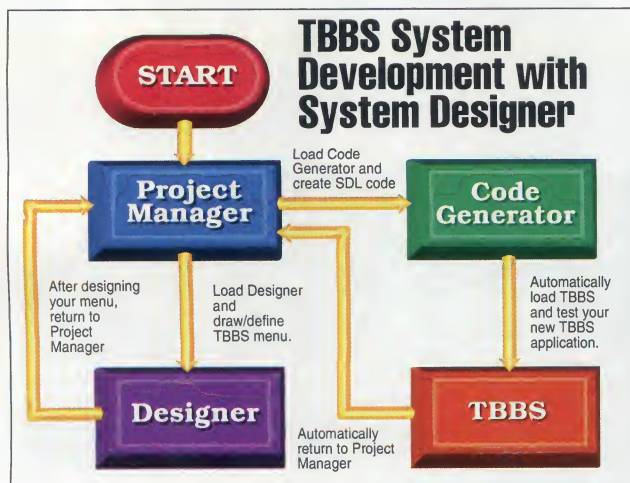
With all of these advanced features you might think that System Designer is difficult to learn and use, right? Wrong! Our software design team has spent 3 man years of planning, development and testing to make System Designer not only the most powerful menu design platform ever offered, but also the easiest to learn and use! The SAA/CUA compliant interface is user friendly and con-

text-sensitive help for every program function is just a keystroke away.

All the tools you'll ever need to generate complex TBBS menus, including true pull-down menus and moving light bar menus, are welded together into a seamlessly integrated development environment.

System Designer's Expert Documentation

PC Information Group publishes a variety of technical journals and reference books for the computer industry. We have put our years of publishing experience into the design and layout of the System Designer reference manuals. Included in this 240-page reference is a 72-page tutorial that teaches you step-by-step how to create a complete TBBS application. The manuals, typeset at 2400 DPI, include over 125 figures, screen shots, charts and flow diagrams that make learning System Designer a breeze.



Speed Test:

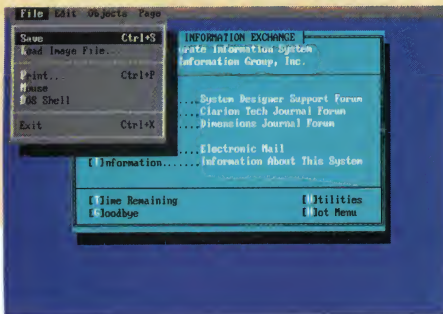
Unlike yesterday's outdated menu designers, System Designer is a WYSIWYG design tool specifically developed for TBBS sysops. Menu design and updates could never be faster and easier!



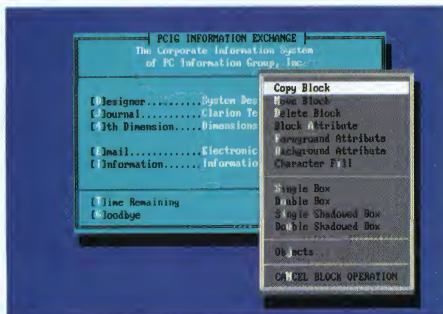
Time needed, using System Designer, to develop an ANSI, B&W and ASCII menu set that compiles and runs the first time — just the way you designed it.



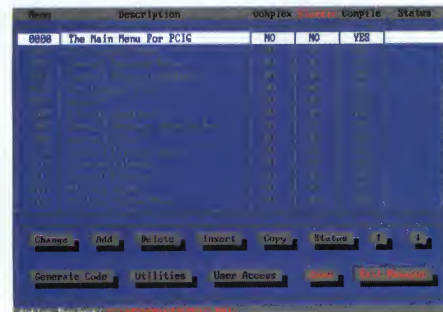
Typical time required to design, modify, cut-and-paste, and test several iterations of the same ANSI, B&W and ASCII menus using existing menu design tools.



An SAA/CUA compliant user interface makes System Designer easy to learn and use.



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Advanced Designer Features:

➤ Industry's Most Advanced Menu Designer

Advanced features like Undo/Redo, line drawing with intersections, on-screen-ruler, as well as point-and-shoot menus for attribute selection, block copy, move, fill, delete, etc., make System Designer the most powerful menu designer available today.

➤ True Click and Drag Menu Design

Once you've defined an area of the screen as an object, simply double-click on the object to select and move it around the screen. Once you have repositioned the object, click the mouse button once to drop the object in its new screen location.

System Designer will allow many people to use TBBS that just wouldn't go through the SDL learning curve.

— BOARDWATCH MAGAZINE, FEB.. 1993

➤ Object Embedding and Containership

Objects can be embedded, as well as created from existing objects, providing you unparalleled editing and modification of menu structures.

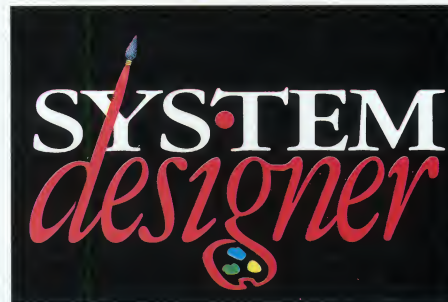
➤ State-of-the-art SDL Code Generation

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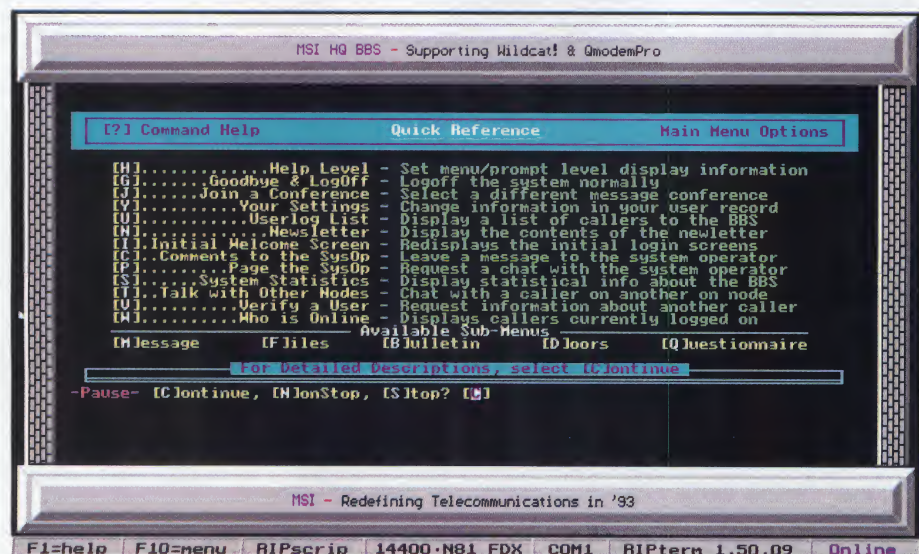
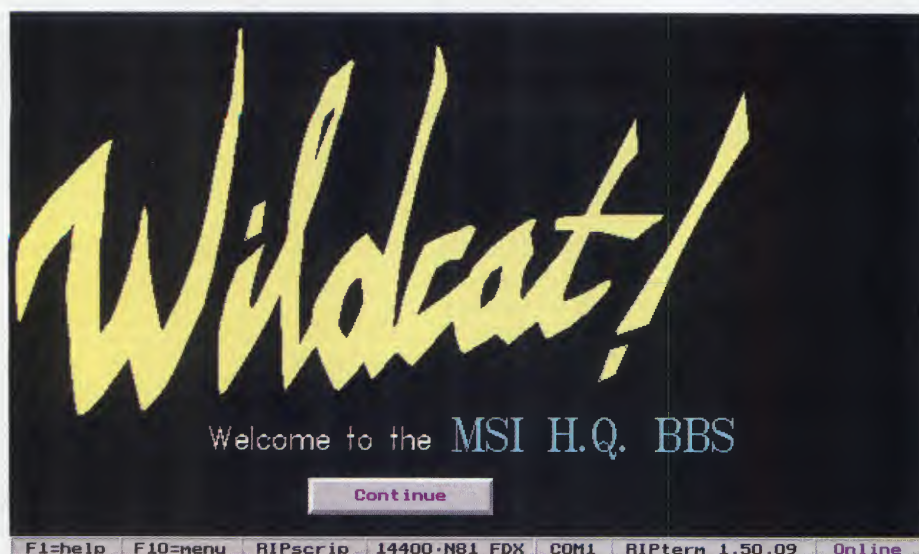


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RIP bulletin boards, we had nearly 2 MB of icons on our hard disk, and several had been overwritten twice in the process with one BBS using the same icon titles as another.

The ARENA BBS is a multiline system with games and chat. We dutifully downloaded their 90 KB of icons, and began to browse about. An unsettling number of icons on the system allowed us to click on them, and dropped us into SOMETHING, but nothing happened but a dark blank screen. If we chopped the carriage return key a few times, it would generally get us back to the menu. But you never knew when an icon was going to do something dazzling, or when it was going to do nothing at all. Their games menu featured dozens of Windows like icons with titles of various games available on the system. The ARENA BBS's main menu features two amazingly lifelike Greek columns making it look a bit like a Greek temple - a good effect.

Large scale graphics do NOT seem to be the strong suit of RIP, though it can do them in a painful fashion. The RIPaint program seems ideally suited for bit-level paint operations, but ONLY on icons. If you want to do a full screen background for one of your menus, the options for creating them are limited. Basically, you have to draw a BIG icon to get into much detail.

In addition to Searchlight and The Major BBS, ResNova is incorporating RIP into their Macintosh BBS package, Novalink Professional. They were probably the first BBS software package to take an interest in the product, and largely responsible for the RIP appearance at ONE BBSCON '92. Their efforts can be viewed on the **Nova Central BBS** at (714)840-8641. A relatively new IBM BBS package titled **Synchronet** has also announced support and they have a demo system at (714)529-9525.

Even BBS vendors who have NOT actually taken the RIP pledge, are finding themselves with a user base that includes some of the apostleship. Bernal Schooley runs the **RIP Demo Midwest BBS** in Aurora, Illinois at (708)978-2777. This is a two-line TBBS system that Schooley has fairly artfully

incorporated RIP screens onto the system using **The Bread Board System's** ordinary propensity for displaying files of any type. He has extensively modified the system prompts using TBBS's language editor and the result is really quite usable - right down into individual message system options presented as buttons. Schooley, a 23 year-old IBM AS-400 operator, intends to make a bit of a business by helping TBBS, Major BBS, and Wildcat! BBS operators incorporate RIP onto their systems. Bernal Schooley, 246 Pepper Tree Lane, Aurora, IL 60504; (708)820-8875 voice; Internet: bernal.schooley@designs.oneworld.wa.com.

The big guns in the graphics battle are other terminal program developers. The BBS software really isn't that difficult at this stage. But no one wants to run a system that none of their callers can access. So the terminal software developers really have the hammer when it comes to determining the future BBS graphics interface. RIP gained a big boost when **deltaComm Development** of Cary North Carolina announced they would support RIP in the next release of their **TELIX** terminal program. Telix is quite likely the second most widely used terminal program in the world after Procomm. And according to Jeff Woods, president of deltaComm, they will be previewing a new Telix release with built-in RIP capability at the Online Networking Exposition and BBS Convention in Colorado Springs this August. deltaComm Development, PO Box 1185, Cary, NC 27512; (919)460-4556 voice; (919)481-9399 BBS; (919)460-4531 fax.

DataStorm Technologies, developer of the market leader, Procomm, invited a number of developers out to their offices in Missouri this past March to try to brainstorm what the graphics standard of the future might look like. They did a pretty thorough roundup of what was available online now, and what features future products should perhaps include. But a number of the attendees weren't nearly so open minded and were openly, and at times somewhat over-aggressively pushing for adoption of RIP. DataStorm did little to detail their own future plans.

But **Mustang Software, Inc.**, developers of the **QmodemPro** terminal program, in practice neck and neck with Telix for market share in the BBS community, demonstrated an updated release of the program at the Spring COMDEX in Atlanta on May 24th. The **QmodemPro Version 1.5** features full RIP emulation, and Mustang has also incorporated RIP into the new Version **3.90** of their **Wildcat! BBS** product. As such, Mustang is the only company to offer both the BBS package AND the terminal program with RIP graphics support. And they are technically the first terminal program, aside from TeleGrafix's own RIPterm, to offer RIP capability in a shipping product.

The Wildcat! HQ BBS has RIP up and running now, and demonstrates some of the power of this interface. When you first logon, a full screen yellow on black WILDCAT! logo is the first thing you'll see. A smaller version accompanies the main menu. Buttons (a bit largish for our tastes) allow you to jump right to file areas, message areas, join conferences, and so forth. Mustang has added insertion parameters the BBS operator can put in ANY text display file to define mouse regions that allow you to click on normal text options as well as iconic buttons.

Mustang, incidentally, just announced it's largest BBS application ever with a **128** line system to be operated by the U.S. Postal Service at their National Support Center. The NCSC will use the BBS primarily to update and post its "Delivery Activity Report," a service to high-volume mailers who need to track distribution of time-sensitive material. More than 1,000 post office across the country are now logging their mailing activities directly onto the BBS, and eventually some 6000 post offices will use the service. The system uses Mustang's Intelligent Multi-Port (IM) version that uses DigiBoard serial cards to host up to eight lines per PC. Mustang claims some 20,000 registered Wildcat! users. Mustang Software, Inc., PO Box 2264, Bakersfield, CA 93303; (805)395-0223 voice; (805)395-0650 BBS; (805)395-0713 Fax.

Most RIP installations tend to look like pearl gray buttons and chrome plated

option bars against fairly dark, even blackish backgrounds. It is difficult to tell if this is the technology or the artistic culture of the adherents to this package. But the effect is chromium and steel against the backdrop of space, and it is pretty fetching.

RIP has three clear advantages over NAPLPS and perhaps a fourth in the wings. First, it makes good, if inconsistent, use of the mouse. Secondly, they have a capable, and freely available terminal program. Third, they are amassing a good following of people who can write code and make things happen with support products and BBS implementations. Finally, the obvious missing element of both the NAPLPS and RIP technologies is the ability to reproduce photo-realistic images online.

According to TeleGrafix CEO Jeff Reeder, this is definitely in the works for the 2.0 release of RIP - expected in about two months. In fact, they may include two different methods of dealing with it - one involving fractal compression, and the other using the **Joint Photographic Experts Group (JPEG)** standard for still image compression. JPEG has gained a lot of ground in the Unix community as a still-image standard and produces very small images while retaining good viewing resolution.

The most attractive thing about RIP is ongoing and active development. The TeleGrafix team that developed this have some undeniable talents for the task and seem to be getting encouragement from the rest of the community. New releases of RIPterm seem to be coming out weekly. And while a discouragingly high number of "bugs/features" seem to be getting worked off, the product is clearly both immature, and causing a good deal of excitement. The group seems amenable to adding most anything, and the protocol itself is quite extensible.

The RIPscrip deals entirely with 7-bit printable ASCII characters, and this may be an advantage over Internet connections. The current version does NOT support JPEG photo-realistic images, and there is no real support for various fonts, although both are planned for

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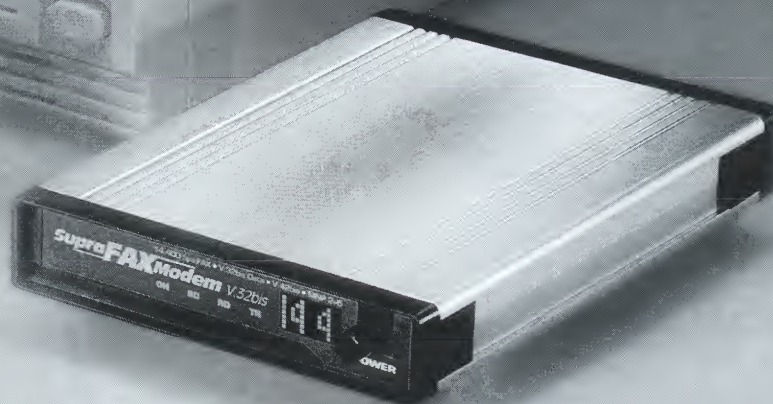
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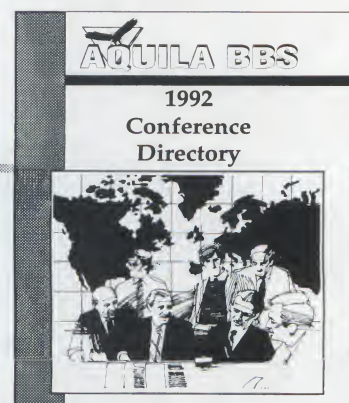
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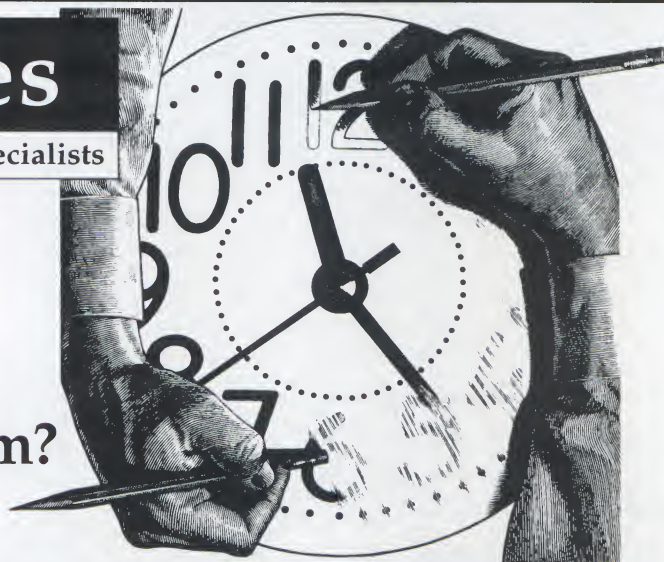
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Are You Losing Time Setting Up Your Business On-Line Information System?



INSTALLING COMMERCIAL BBS SYSTEMS IS OUR ONLY BUSINESS

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GW Associates was formed several years ago to promote and support the growing need for Information Management systems (BBS). Our goal has always been to make communications easier. We've always had the opinion that many seem to work very hard to make "telecommunications" some kind of mystery, a gray area where common man should never wander. And it really can be made simple. We'll be happy to show you how!

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If there's anything we can do to help you make better use of any communications tool, please ask. If you're not sure if you really have a need for a system and want to know more, please ask. We're here to help in any way we can. We hope you'll give us the opportunity to help. If you need information on prices or just need information on communications, don't hesitate to ask for help. We enjoy what we do and we'll enjoy discussing your applications and needs.

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There's a lot available for the TBBS/TDBS System Operator, as well as for anyone interested in an Information System (BBS). If you want to learn more about TBBS/TDBS just call our system and register as a customer. GW Associates offers full support to all System Operators and "we have more than twenty excellent programmers" available to help with your applications and customizing of your system at a very reasonable cost. Please call our system at (508) 429-8385 (N,8,1) and keep up with our new releases or call us on our voice line at (508) 429-6227 if we can help you in any way. Installing and remotely supporting commercial systems is our ONLY business!



Call our Sales and Support BBS for full demonstrations of over 100 TBBS / TDBS add-on application, entertainment and utility programs.

TBBS / TDBS SYSTEM ENHANCEMENT SOFTWARE

QuickSearch

The ultimate in text file search programs, QuickSearch is the ideal tool for any customer or sales support system. QuickSearch is a program that is designed to create an index of over 11,000 text files in up to 99 directories and allow a user to perform a multiple boolean criteria search to find matches in these files and present them for display or download. It sounds simple, and it is! And it is unbelievably fast. This program is a must if you have a need for fast information retrieval. Easy to install and even easier to maintain, it can quickly put an end to repetitive questions from your users.

The Master Series

BoardMaster is the answer to the need for a fast, easy-to-use way to organize and display your message base without using TBBS menus. It allows ONE menu entry, or none at all. It displays up to 999 different message areas/topics with 60 boards displayed on each screen. BoardMaster is fully multi-lingual and color configurable by SysOp and individual users. It has full support for topic boards, Personal Message Groups defined by your users, and many other features to make it easier for your users to access message boards.

PostMaster will handle all your needs for sending mail to users. You create messages that appear very similar to TBBS messages and send to users by a wide range of criteria, including "send to list" capability, without impacting your TBBS message base. It even handles file enclosures. There is no limit to the number of messages that PostMaster will deliver and Individual logs are maintained for each message so you know when messages have been read. Other features include: automatic cutoff; automatic repeat; start delivery on specified date; complete support for ANSI and ASCII users.

Master File Manager (MFM)

MFM is designed to make it as easy as possible for your users to download files from fixed disks and compact discs with as little impact to the system as possible. And with the new network interface MFM adds even more capability and flexibility to this well known and full featured program. Hundreds of TBBS SysOps now use MFM to simply and easily handle all their file download requirements.

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We have dozens of games and entertainment software available, including the all new The Wild Side (Interactive Adult Adventure), Video Poker, and Chain Links (an addictive word chain puzzle). If you are interested in arcade games, word games, games of chance or adventure games for your TBBS/TDBS system we have them at prices from \$29.95 to \$169.95.

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IF YOU HAD THREE WISHES,

Take a close look and you'll see why so many sysops are switching to the Synchronet Multinode Bulletin Board System. For one, message networking is second nature for Synchronet. Not only does Synchronet support FidoNet, QWK, and PostLink (RIME) message networks, but network considerations are integrated into every aspect of the BBS. Synchronet's hierarchical message and file areas are the perfect organizational solution for today's multi-network message and CD-ROM file areas. Synchronet has many built-in features that other packages either don't offer or require an add-on, such as multichannel and private key by key chat, offline reader features, and multiuser CD-ROM support. First time operators appreciate Synchronet's elegant menu driven configuration, while experienced sysops revel in its wealth of options and flexibility. The list goes on and on. But don't take our word for it, check out the competition first. With Synchronet, you won't need three wishes.

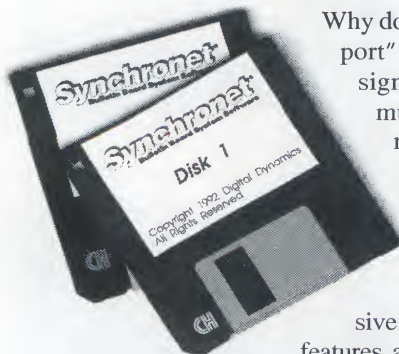


Feature and Price Comparison for an 8 node BBS on a single 486 PC

	Synchronet	Wildcat!IM	PCBoard/M	MajorBBS	TBBS
Node license	\$199	\$799	\$440	\$508	\$895
Multitasker	\$200	\$200	\$200	Yes	Yes
8 port I/O	\$300	\$800	\$995	\$575	\$500
Multinode chat	Yes	Yes	Yes	Yes	Yes
Multichannel chat	Yes	Extra	No	Yes	Yes
Private key by key chat	Yes	No	No	Yes	Yes
Offline reader support	Yes	Yes	Extra	\$199	\$99
QWK networking	Yes	Yes	Extra	No	Yes
FidoNet import/export	Yes	Yes	Yes	Yes	Yes
Send/receive NetMail	Yes	Yes	No	No	Yes
PostLink (RIME) support	Yes	Extra	Yes	Extra	No
RIPscrip GUI support	Yes	No	No	Extra	No
Novell/DOS LAN support	Yes	Yes	Yes	Yes	No
976/900 billing support	Yes	No	No	Extra	Extra
Real-time node activity alerts	Yes	No	No	Yes	Yes
Enhanced CD-ROM support	Yes	Yes	Yes	Extra	Extra
Multiuser SDK	Yes	No	Extra	Extra	Extra
Incoming FAX support	Yes	No	No	No	No
Chat between doors	Yes	No	No	Yes	No
Bidirectional file transfers	Yes	Yes	Yes	No	No
Multiple user command sets	Yes	No	No	No	No
Supports DOS doors	6 types	1 type	3 types	No	No
Hierarchical msg & file areas	Yes	No	No	No	No
External transfer protocols	Yes	Yes	Yes	No	No
Total price	\$699	\$1799	\$1635	\$1282	\$1494

Prices do not include CPU or modems. Features and prices compiled from vendor supplied information 2/93, are subject to change without notification. Wildcat!IM, PCBoard/M, MajorBBS, TBBS, QWK, FidoNet, PostLink, RIME, RIPscrip, Novell, and DOS are trademarks or their respective companies. Commercial or Shareware Toss/Scan utilities are required for some message network technologies.

YOU COULD TOSS THE OTHER TWO.



Why doesn't Synchronet have a special "multiport" version? Because Synchronet was designed from the ground up as a high-speed multinode BBS capable of running up to 10 nodes on a single 486. It's advanced interrupt driven output design combined with DESQview optimizations maximize CPU utilization, allowing Synchronet to out perform other systems running special "multiport" versions on expensive coprocessed I/O cards. For performance, features, and value, nobody beats Synchronet.

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future releases. The protocol lacks the device independence of NAPLPS, and in fact seems mired in the clearly obsolete EGA standard - it does not entirely take advantage of VGA at this point, and seems further limited to a mere 16 colors. We found the paint program incomprehensible in all ways, which could be either us or the program, actually. There were a couple of fascinating utilities to convert ordinary PCX and TIF images to icons. In general, we simply couldn't get them to work on most PCX or TIF files. But these are precisely the type of tools that will allow people using their favorite drawing program to port into RIP, and they show a lot of promise.

NAPLPS on the other hand suffers from its heritage. It is an international standard, but it has been around for some time to little effect. MicroStar Development made one huge kill in signing up Prodigy to use a customized version of their NAPLPS technology for the Prodigy online service. And the company has suffered from an inability to work up any enthusiasm for anything that doesn't generate their SECOND multi-million dollar deal. The PPP3 terminal program they did release as shareware, largely to make Dave Hughes go away, is not terribly impressive as a terminal program. It will display NAPLPS frames and several people have managed to wed it to Procomm or Telix by tricking these terminal programs into believing PPP3 was an add-on file transfer protocol - basically shelling out to PPP3 to display NAPLPS graphics and dropping back into the main terminal program to do file transfers and ANSI graphics. It can be done fairly smoothly, but is not something the novice caller is likely to tackle with regards to installation.

The good news with NAPLPS is that it is more adroit at sweeping graphics screens. And there has been some progress. Dave Hughes has contracted with some Russian programmers to produce a fairly remarkable terminal program he calls TeleDraw. He recently demonstrated the program for several groups in Hawaii to rave reviews. But oddly, after talking Microstar into releasing PPP3 as a shareware program, Hughes intends to sell TeleDraw to

schools and government entities as commercial software at \$150 per copy. The program is specifically designed to work over 7-bit Internet paths and includes an on the fly UUENCODE/UUDECODE algorithm as well.

Michael Dillon is doing some of the most exciting work on NAPLPS up in Armstrong British Columbia. Under the auspices of his Memra Software Inc. company, he is developing some tools to port other graphics formats into NAPLPS. Most notably, he did a program titled NAPICO that allows you to embed Windows icons into NAPLPS frames. He's currently working on a program to convert Windows Metafiles created in Corel Draw into NAPLPS frames. But perhaps most useful, he has authored a 127KB document titled, appropriately enough, NAPLPS, that actually translates the ANSI X3.110-1983 from the obscurely indecipherable into something merely a bit technical. It may be the first explanation of how it all works understandable to most of the people capable of coding products. It is really pretty good documentation. Dillon operates the **Star Valley BBS** at (604)546-2705 as Fidonet 1:353/350. The files are available for file request under the names NAPLPS, NAPICO,

and NAPWMF. Memra Software, Inc., C-4 Powerhouse, RR#2, Armstrong, BC V0E 1B0, Canada; (604)546-8022 voice; Internet: mpdillon@halcyon.halcyon.com.

There are some other contenders out there. Canadian Seth Hamilton now offers a BBS/terminal package titled **ROBO-BOARD** that is generating some excitement among BBS operators. Their 1.00 release is slated for June 21st and some beta testers are nearly falling swoon to this interface, based on what they term the **TEL-FX** protocol. They likewise are offering a toolkit so other developers can join the party. Hamilton Telegraphics, Inc., PO Box 633, Aylmer, Quebec Canada J9H-5V8; (819)682-6670 voice; (819)685-0994 fax; (819)685-0957 BBS.

Imagen's **Fracterm** product continues as the **ONLY** current interface supporting photo-realistic images and they do have a new Windows terminal program. Many of those who want a better interface want it to display photo-realistic images and don't HAVE a second reason for wanting it. There are some applications where not only is a picture worth a thousand words, but if you don't have a picture, you can save your breath.

The screenshot shows a terminal window titled "FRACTERM" with a menu of items for sale. The menu includes:

- Four Sacred Drummers**: A small image of a drum.
- FOUR SACRED DRUMMERS**: A small image of a drum.
- Medieval fortress, Costa Brava, 12 bedrooms and 8 bathrooms**: A small image of a castle.
- MEDIEVEL FORTRESS, COSTA BRAVA SPAIN**: A small image of a castle.
- Beautiful, rugged coastline area north of Barcelona. This magnificent castle contains 12 bedrooms and 8 bathrooms.**: A small image of a coastline.
- Classic 1928 115' racing yacht, recent restoration \$3.5 MILLION**: A small image of a yacht.
- 115 FOOT RACING YACHT**: A small image of a yacht.
- This classic yacht, the Astra, was build In 1928 in Boston. Recently restored to its original splendor. Full teak galley with new stove and microwave oven, completely rebuilt engine, new sails and deck.**: A small image of a yacht.
- Asking price: \$3.5 MILLION**
- Please call C&N, Cannes, France (33) 93.43.65.32**

At the bottom of the window, it says "OFF LINE" and "Comm Port = 1 Baud = 38400 Parity = N Bits = 8 Stop Bits = 1".

Fracterm's online photo images

Describing online the marvels of a \$1200 painting by an unknown artist is an exercise better left to those with little to do, and less to do it with. Fracterm uses a fractal compression technology that to our eye, is not as flexible or offer as good a resolution as JPEG might. But they are the only vendor with a viable photo-realistic product available now. They have a demo system up at **(604)687-1030; (604)687-7511** voice.

But with the RIPterm program offering a reasonably complete and totally free terminal program, and TWO major names in terminal programs, **QmodemPro** already on the street and **Telix** promising demos in August, RIP has an overwhelming advantage over NAPLPS or any other technology. Major BBS software vendors including Galacticom, Searchlight, and Mustang Software have already voted for RIP and several lesser known names such as Synchronet and Novalink are aboard as well. While eSoft has made no announcements, the flexibility their TBBS software already has with regards to prompt languages and display files have allowed a pretty strong contingent of TBBS operators to put RIP online anyway. There's not a lot for eSoft to add beyond larger language file capacity (currently limited to 32K).

What is amazing about RIP is how quickly it happened. Last August, they appeared for the first time in public with an entirely new protocol that required rework on both ends of the link to make it happen. Barely nine months later, the bulk of the communications software vendors in BBSland have it up and running. It looks like a pretty good birth and a bright future for the boys at TeleGrafix Communications, Inc. Should they accomplish the promised addition of JPEG photo-realistic graphics in time for the ONE BBSCON THIS August, and perhaps do some work on the paint program to make full screen image creation as easy as the iconic graphics, the online world will have everything needed to move to a new level of communication. TeleGrafix Communications, Inc., 16458 Bolsa Chica #15, Huntington Beach, CA 92649; **(714)379-2131** voice; **(714)379-2133** BBS; **(714)379-2132** FAX.

STEVE JACKSON GAMES WINS LAWSUIT

In our April issue, we described the Steve Jackson Games lawsuit against the U.S. Secret Service seeking damages for their seizure of the Illuminati BBS. On March 12, Judge Sam Sparks of the federal district court for the Western District of Texas announced awards on behalf of the fantasy game publisher. Ruling that the Secret Service had violated the publisher's rights under the Privacy Protection Act of 1980, the judge awarded the company more than \$50,000 in lost profits and expenses, as well as legal expenses that had been sponsored by the Electronic Frontier Foundation.

Notably, three of the BBS callers were also awarded \$1000 each because their statutory rights to electronic mail privacy protected under the Electronic Communications Privacy Act were also violated. This may be the most important aspect of the case. If law enforcement authorities ignore electronic mail privacy considerations during BBS investigations, the potential liability from callers could be substantial on large systems with significant caller bases. Perhaps this will serve as sufficient deterrent to law enforcement to more rigorously observe appropriate procedures when investigating bulletin boards.

NEW 128KBPS ISDN SERVICE UNIT FOR PERSONAL COMPUTERS

Adtran, a Huntsville Alabama hardware manufacturer has announced a very interesting adapter to link personal computers to the Integrated Services Digital Network.

There has been some confusion in the past as to just what is needed to connect a PC to ISDN. Hayes and others have offered terminal adapters, and some bulletin boards have used them to make the connection. But they were usually surprised to learn that AFTER purchasing an adapter, they had to buy ANOTHER adapter, termed an NT-1 adapter, that can run as high as \$350, to use the service.

The Adtran adapter is priced at less than \$1000 and offers two fairly unique features. First, it contains the NT-1 adapter internally. Second, it can aggregate the two 64 kbps B or "bearer" channels provided in basic rate ISDN service into a 128kbps data channel (115.2 kbps asynchronous). It is compatible with both the AT&T 5ESS and Northern Telecom DMS-100 telephone switches. The adapter supports dedicated leased 2B1Q services and provides flexible full-service basic rate dial back-up capabilities. Adtran, 901 Explorer Blvd., Huntsville, AL 35806; **(205)971-8000** voice; **(205)971-8699** fax.

COMMERCIAL SERVICES

PRODIGY - IN SEARCH OF LIFE

Prodigy Services Company, the online service subsidiary/partnership of IBM and Sears, has done an impressive job of developing the two largest communities online. Their online service now boasts over **2.1 million** users on **1.2 million** paying accounts. And the other community they have formed is probably even larger - those users who were introduced to the online world on Prodigy, and are now online everywhere else BUT Prodigy.

The Prodigy Service began life as an idea in the mid-80s under the name Trintex - a partnership between CBS, IBM, and Sears Roebuck and Co. CBS dropped out before introduction and the service was renamed Prodigy.

The original concept was to gather some 10 million people who were NOT part of the online world, bring them online, and form a channel that could be sold to advertisers. And the original concept called for investing a LOT of money in the service over a period of time to get there - they were in for the long term and the big service.

And the concept pretty much HAS worked to the plan. The problem is, plans change. The once invincible IBM

has shed nearly 100,000 workers and is itself searching for a reason to live. And Sears, at one time unassailable in the retailing market, is ALSO in financial and market share trouble and THEY are planning to promote nearly 50,000 workers to the street. As a result, Prodigy lives at the behest of "The Partners".

One number Prodigy has never bragged about is the cost of acquiring new customers. Estimated at over \$430 each in advertising, trial kits, in-package promos, etc., their customer acquisition costs are the highest in the industry. And Prodigy held to the original "video-text" concept. You take news, weather, financial data, "Information", cast it into screens, have your lawyers bless it, and then "present" it to an anxiously awaiting public.

The problem is, that after the original novelty of seeing weather, news, and financial information, none of that is what the online public wants to do. There are just enough news junkies who go into anxiety attack without a news fix, and just enough financial investors who live by the ticker tape, to make it look promising. But throughout the rest of the online world, what people seem to do most pervasively, boils down to two things. They want to acquire software - in unlimited amounts. And they want to communicate with each other - forming communities.

Take for example The Whole Earth Electronic Link. This service has survived for years on very little initial investment, and even operated profitably in recent years, with NO interface at all - Picospan is the next baby step up from the Unix command line. They have no particular services, and for that matter, even the file download function is pretty slim and performs poorly. It is an example of a very nearly pure community function without ANY of the other elements that might make a service attractive. Yet it's widely regarded as THE online place to be - certainly by the 7000 participants on the service.

So Prodigy has introduced huge numbers of people to the concept of online communication, at an impressively horrendous cost. Part of the growth in bul-



Carol Kopp in the Prodigy News Room

letin boards has come directly from people who leave Prodigy. In a sense, Prodigy has served as a one billion dollar marketing campaign for local bulletin board systems. The problem is, Prodigy itself has finally reached the point where it either has to turn a profit or shut out the lights.

That task has fallen to Prodigy President Ross Glatzer, a former Sears ex-

ecutive that some Prodigy insiders refer to as "the tire and battery man". But Glatzer is determined to turn the service around and there aren't any holy cows in Prodigy's White Plains office building these days. As a result, the initial spark of innovation is taking root despite the corporate culture.

The immediate outcome is there are some changes for Prodigy users. Some



Edgar Hartmann - Site Operations Director at Yorktown Heights



How DO you back up a 40,000 line BBS? - tape.

positive, some negative, and some confusion. In April, the service announced institution of connect time charges of **\$3.60 to \$4.80** per hour for the bulletin board areas, airline reservations, stock quotes, and DowJones News services. Actually, there will be two service levels. The **Prodigy Value Plan** is **\$14.95** per month and includes **30** private messages and two hours connect time on "Plus" services which include most bulletin boards, **QUOTE CHECK**, **QUOTE TRACE**, **DowJones Company News**, and **Eaasy Sabre** airline reservations. Additional time is available at **\$4.80** per hour if you use **0-3** hours, **\$4.20** per hour if you use **3-6** hours, and **\$3.60** per hour if you use over **6** hours. Services defined as "Core" services continue to be flat rate (no connect time charges) for the value plan.

Prodigy is also offering an **Alternate Plan** at **\$7.95** per month. Though the monthly fee is smaller, ALL services (both the core services and the plus services) are charged at the connect rates, and no free messages are provided. E-mail is priced at **\$0.25** per message.

While the hourly rates would be enormously attractive to CompuServe or GENIE subscribers, or even BBS callers dialing long distance, Prodigy users are

outraged. Most of Prodigy remains flat rate, but the BBS users, who now post some **180,000** messages per day, are incensed. The flat rate nature of the service is apparently considered sacred and a number of Prodigy users noted online that they and their families spend in excess of **100** hours per month online. Inexplicably, noting that they could not afford it, they threatened to go to CompuServe.

Which is precious. Prodigy is currently revamping their service to provide 9600 connect rates nationally, and is DROPPING a **\$2** per month 9600 surcharge. CompuServe, by contrast, charges **\$8.95** per month PLUS **\$16.00** per hour for 9600 service.

The reasons for the increased charges revolve around the fact that Prodigy has to change in order to keep subscribers and gain profitability. Badly needed items include an Internet connection, file areas, and perhaps even a nationwide chatlink. Without these functions, subscribers inevitably will continue to "graduate" to services that offer these functions.

The company IS making an unusual move concurrent with the connect charges - they are introducing their own version of offline mail readers. Taking a

cue from the BBS world, and offline mail developed by CALLERS to CompuServe and GENIE, Prodigy is working on an enhancement to their terminal software that would allow callers to make the connection, download mail, reply offline, and upload later, much as BBS callers routinely do with **.QWK** mail readers, and CompuServe users routinely do with **TAPCIS**, or **OZCIS**. Prodigy is also working on a Windows version of the terminal software.

A close look at Prodigy's architecture shows part of problem they face. We were allowed a tour of both their White Plains offices AND their Yorktown Heights New York system facility - ostensibly the only publication ever to be allowed behind the doors so to speak.

The original Prodigy architecture was a distributed information concept. **Prodigy Local Sites (PLSs)** would be built in various cities around the country. The system would gather information from Reuters, UPI, stock services, and so forth into an editorial news office. This operates much like any major newspaper or television network news department, and has a full staff of journalists headed by Carol Kopp. This center runs 24 hours daily gathering news from dozens of services, and formatting and entering it on editorial workstations, using coincidentally enough, the XyWrite word processor, into a Producer LAN. This is a fairly gargantuan Novell LAN with some 35 file servers that functions as what they term their Producer LAN.

One the items that causes Prodigy endless headaches is their early position in censoring BBS message traffic. Originally, the service considered itself a "publication". The BBS function was spliced on as pretty much an afterthought and is not even particularly easy to FIND on Prodigy. Barely **20%** of Prodigy subscribers use it at all, but they are currently generating some **180,000** messages per day on **400** bulletin boards, and generally cause MOST of Prodigy's problems. Prodigy wanted to be considered a "family" service, and so they wanted to review and approve message traffic. Virtually every imbroglio they've been involved with since

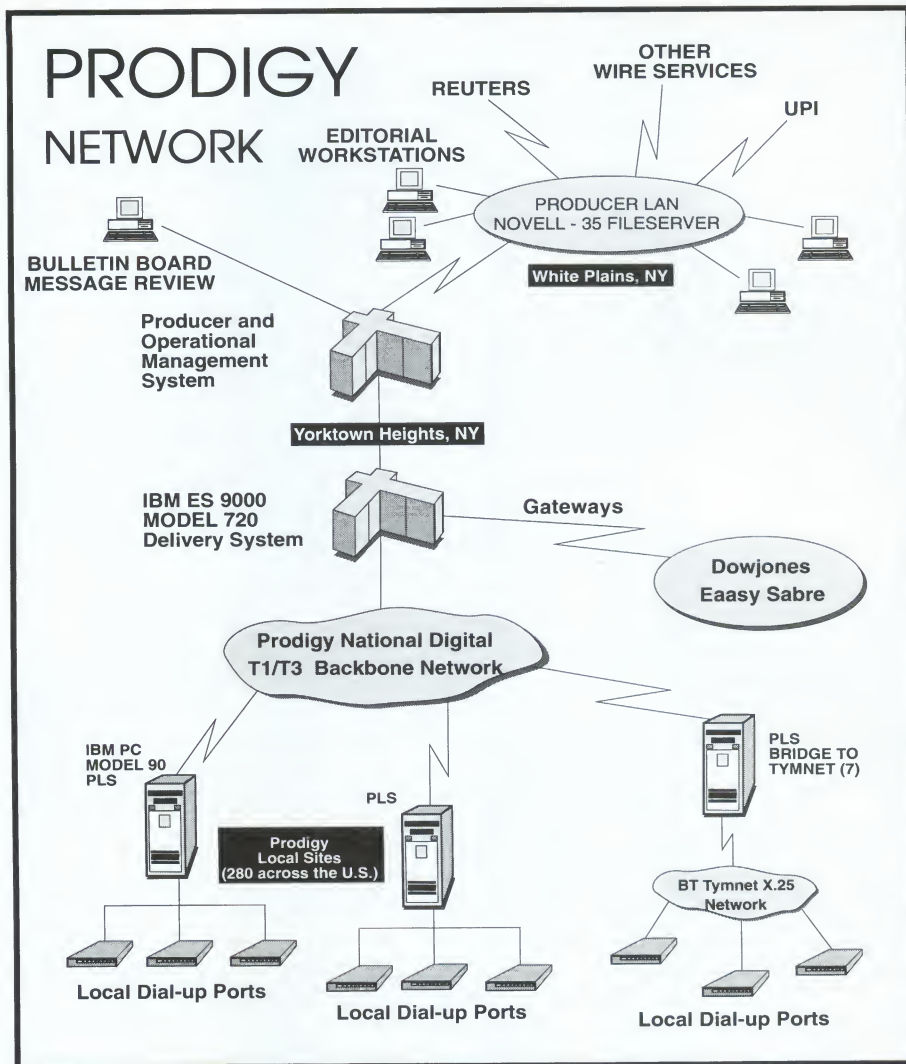
has circled this one wagon. And it continues to be a very real problem. Half their callers are unhappy that their messages are censored. The other half are unhappy over the messages that AREN'T being censored and demand that "that guy over there" be censored. If you want a case for why NOT to regulate message conferences with a heavy hand, Prodigy is a prime example of how to get a tiger by the tail with no option to let go.

Indeed the problem flared again this year when a member posted derogatory information about a company titled MEDGEN - a small biomedical company that the member had lost money on in the stock market. Apparently, enough Prodigy members read the "advice" and acted on it that MEDGEN's stock took a dive. Actually, the company hadn't been doing that well and it is questionable whether the Prodigy post had anything to do with it, but the company filed suit against the member and was threatening to file suit against Prodigy. Prodigy, naturally enough, wants the member to bear legal responsibility for his comments, but is a little tangled in their "publisher" analogy and past propensity to censor messages.

Despite some highly automated screening, some 40 people work full time at terminals on the Producer LAN reviewing messages that get kicked out as "maybes" by the system. Additionally, each BBS area has its own "sysop" more or less who run that particular bulletin board. Steve Larsen is pretty much the man in charge of bulletin boards, and he's bent on making them a larger part of Prodigy to keep callers onboard the service.

The news, weather, bulletin board postings, etc. move to the Yorktown Heights facility by wire. This is the hardware room of the world's largest BBS, presided over by the closest thing Prodigy has to a sysop. Edgar Hartmann is Site Operations Director at the Yorktown Heights facility.

The actual Prodigy BBS hardware, as best as we can tell, is what they refer to as the Delivery System. This is a series of water-cooled **IBM ES 9000 Model 720** mainframes housed on the tradi-



tional raised floor. It's not particularly handsome to look at as mainframes have lost most of the whizzing tape, flashing console look. In fact, the computers are in a very large whitish room where for most of the time, no one goes and they don't even keep the lights on. A control room that doesn't differ a lot from the bridge of the starship enterprise sports a number of monitors. The "BBS software" is actually an IBM operating system called TPF - **Transaction Processing Facility**. IBM sells this to airlines, credit card companies, and others who need to enter large numbers of transactions online. The actual "console" most BBS operators would recognize is about a 17-inch screen displaying system activity in red on black characters. We actually were appropriately wowed - it showed about **20,000** people

on the system when we looked. According to Hartmann, their peak period is 9-10 PM EST and **20,000-23,000** users is about normal, although after the Presidential elections they went well over **25,000**. Prodigy callers dial in about **800,000** times daily on some **40,000** telephone lines.

The Delivery system probably represents some **\$30 million** in hardware. And Hartmann takes reliability quite seriously. The service requires three things to operate, electricity to power the system, telephone service, and cooling water. They run off of city water, but actually have their own on-site well and pumping system to deliver water in the event the water is disrupted for any reason. Electrical power normally comes from the public grid as well, but they

have on-site diesel generators with a huge underground fuel tank and a battery system that can power the thing for several days if power is lost. Finally, telephone service is provided by TWO telephone companies from two different central switching offices. If one fails, they can switch to the other in a matter of minutes. Finally, if the whole place goes up in smoke, in theory they have offsite backup tapes and can be up and running from a "hot backup" system maintained by IBM in Franklin Lakes New York within 24 hours. Hartmann estimates the current hardware could handle a subscriber base of 6 to 8 million users.

The Yorktown facility is also gatewayed into several other services - including the Eaasy Sabre airline reservation center, and DowJones News Service, for the various services Prodigy users can access from DowJones.

The delivery system is linked by Prodigy's own T1/T3 national network to some **280** Prodigy Local Sites (PLS) around the country. It would appear that the Prodigy backbone is considerably larger than the National Science Foundation backbone that serves as the heart of the Internet. The PLS's are being upgraded from older mini hardware to IBM Model 90s and each services about **100-200** modems which are connected to local telephone systems. The service is in the process of upgrading to 9600 service nationally and should complete this by the end of 1993. This is what callers actually dial into with a local call. Seven of these PLSs are tied into Tymnet. Some cities without PLSs can dial local Tymnet nodes to access Prodigy that way. The PLSs service some **32,000** telephone lines while Tymnet offers an additional **8000** lines for a **40,000** line total.

The original theory was that information would be assembled in New York, and distributed as many times as necessary to the Prodigy Local Sites. Callers would be dialing a local computer, and with this efficiency Prodigy could handle most transactions locally, while maintaining a national network. There were a few things callers could do that would have to go through the national center at Yorktown, but it was thought

that most of it would be "consumed" locally.

One of the things that has to go through the Yorktown facility is the bulletin boards. Another is electronic mail. In one of the early imbroglio's, Prodigy shut down one of the more controversial bulletin boards. When participants complained, an alert Prodigy employee told them to "take it to private e-mail." So they did. The participants set up what is known in the Internet as a "mailing list" and one of them acted as a reflector. Any message to the "list" was resent to everyone on it using software to automatically do the resend. Prodigy officials, apparently having never encountered a mailing list before, complained publicly that one user was sending 1200 messages per month. Mailing lists are inherently inefficient, but Prodigy had told them to take it to private e-mail, and so they had. Shortly after, Prodigy imposed a 30 message per month limit on the free mail, which served to enrage everyone on the system - not just those running mail servers.

But the BBSs did generate traffic - far more than foreseen. While only about **20%** of Prodigy members use bulletin boards, they account for **50%** of the system traffic. And the Dow Jones and Eaasy Sabre gateways generate a bit as well - and THEY have to go through Yorktown. In effect, much of the "distributed information" theory the system had been setup for was coming down around Prodigy's ears.

They raised their monthly rate from **\$9.95** to **\$12.95**, then to **\$14.95**. To no avail. Today, the system generates **\$15** each from 1.2 million accounts, and it costs them about **\$20** per month to service each account - an estimated **\$6 million** per month operating drain - never mind whatever is spent to acquire new callers to replace those "graduating." While system membership grew some **40%** in 1992, system usage and associated costs went up nearly **300%**.

And the distribution of use and expense is not precisely matched. And from some of the wails of anguish posted on the Prodigy Exchange BBS decrying

the change in pricing, some of these BBS users are spending over **200** hours per month in the BBS area. According to Prodigy President Ross Glatzer's letter to members, there is an issue of fairness. The company can't raise the flat-rate fee on everyone, when the increased expense actually comes from taking care of 20% of the member base.

The company did have a staff of some **240** service representatives handling nearly **15,000** "help" voice calls/e-mail daily. Early this year, they moved that out of house to Sears Payment Services to reduce their overhead. But with both of "The Partners" in difficulties themselves, the prospects for them allowing Prodigy to eat \$70 million or more losses per year indefinitely are pretty grim.

So the company is looking at a number of things - offline mail, Windows terminal programs, Internet connectivity, shareware file areas, chat service, we got the impression that nothing was ruled out on principle, though Glatzer does seem intent on the "family service" orientation. And apparently clock charges are in at **\$3.60** per hour as of July 1. This undoubtedly will enrage some of the current user base. One of the bulletin boards devoted to discussion of the Prodigy service is generating hundreds of messages daily from the disgruntled. And Marty Babicz of Bristol Connecticut has been trying to organize a "boycott Prodigy" movement - using the Prodigy bulletin boards. He's also claimed that Prodigy has censored/deleted his messages regarding this, a claim Prodigy has denied. I confess, I don't quite get this one. If you organize a boycott by e-mail, and what you are boycotting IS e-mail, how do you stay in touch?

But it appears to be down to the point that if they did lose half or more of their users, but stemmed the red ink and moved into the black, they could move forward with new and better services for members. If not, there is a very real possibility that the largest BBS in the world, will drop carrier for the final time. Prodigy Services Company, 445 Hamilton Ave., White Plains, NY 10601; (914)993-8789 voice; (914)684-0278 fax.

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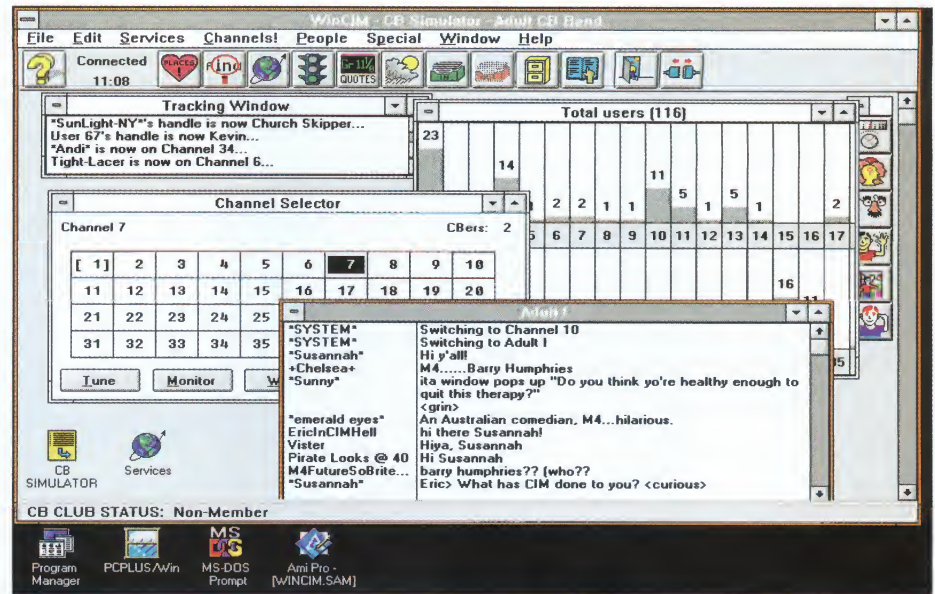
by Alan D. Bryant

CompuServe Information Service (CIS) is among the oldest and arguably is the largest of the major commercial online services. The service, owned by tax prep giant H&R Block, has prospered despite what is widely viewed to be virtually unusable interface. Hundreds of thousands of modem owners have suffered through the rigors of trying to find things from amongst its vast collection of features. And at up to **\$22.80** an hour, you can spend the GNP of a third-world country just finding something you're looking for (to speak nothing of actually using it once you've found it).

Third parties have been developing solutions for CIS's "information overload" for years now. One of the most popular of them is TAPCIS, a DOS-based front-end navigator released as shareware. Despite a rather rough and klunky interface, it's a nice way to automate access to CIS's forums and download areas (libraries). (TAPCIS, **\$79.00**. Support Group, Inc., Lake Technology Park, McHenry, MD 31541. **301-387-4500** Voice.)

A similar program, OZCIS, is another DOS-based, text mode solution to the CIS hurdle. It too automates access to CIS and its major features, using an elaborate (and somewhat confusing) array of menus. One advantage to OZCIS is that it's free for personal use. (OZCIS. Ozarks West Software, 14150 Gleneagle Drive, Colorado Springs, CO 80921.)

Access programs for CompuServe not only help you to find and participate in the system's enormous array of features, they save you money too. CIS is the most expensive of the major public online services, running **\$6.30** an hour for even 300 baud access, **\$12.80** an hour for 1200 or 2400 bps, and a whopping **\$22.80** an hour for 9600 bps. In addition, you pay **\$2.50** a month for the privilege of maintaining an account (which also entitles you to your monthly copy of the system's not surprisingly self-serving magazine). CIS calls this type of account the "alternate pricing



plan," although it represents CIS's traditional membership structure.

CIS has been making moves toward becoming more competitive in their pricing. With what is titled "standard membership" you pay **\$8.95** a month for unlimited access to a subset of the system's features, then you pay an hourly speed-dependent rate for enhanced services (like real-time chat). The hourly rate on standard memberships is slightly less than the alternate pricing plan, but is still steep: **\$8.00** per hour for 1200/2400 bps access, and **\$16.00** per hour for 9600 bps.

These new hourly rates for a standard membership have been in effect for just a couple of months at this writing, making it an attractive option for those that don't mind the minimum monthly charge. Even with these more competitive charges, CIS is no bargain, and regardless of which membership type you have, an access program will reduce your online time and reduce your costs as well.

CompuServe itself is no stranger to the access program game. The CompuServe Information Manager (CIM) has been available for years. DOS users can use it to automate at least some of the functions available online, and make it significantly easier to find one's way around. But the newly introduced WinCIM (CIM for Microsoft Windows)

has all the features of an access program, along with a snappy, clean and easy-to-use Windows interface.

WinCIM, which has been in development and testing for months, is the culmination of a tremendous effort on the part of CompuServe to make their service more approachable. Originally promised for 1992, WinCIM finally made its belated appearance in February of this year. With the program, CIS becomes downright inviting.

Like TAPCIS, OZCIS and CIM, WinCIM is basically a slick interface on top of a klunky foundation. Unlike Prodigy and America Online, WinCIM does not make CIS into a totally graphical online environment. Rather, it almost totally masks the rude and harsh world of CIS from you, handling all that "icky stuff" itself instead of forcing you to do it. The result, however, is more seamless than you might expect.

The key word here is "almost." There are still parts of the service you're forced to reckon with, such as the Grollier Encyclopedia and American Airlines' Eaasy Sabre. Think of WinCIM as two programs in one: a snazzy graphical overlay for many features, and a Windows terminal program for the rest. Which mode it's operating in varies, and the program switches automatically to terminal mode when necessary. Its native graphical mode is used for the most

popular services on CIS, including forums, electronic mail and chat.

The installation of WinCIM takes mere minutes. We were somewhat disappointed that the installation program did not step us through the modem or telephone number configuration process. Instead, it simply copied the files, then created a program group. We were left to our own devices to run the program, and figure out how and where to tell it about our modem and what number it might want to dial to connect with the service. Inexperienced users won't be anywhere near as tolerant about this as we were.

Once we installed the software, ran it, and configured our modem, telephone number, user ID and password, we were ready to go. When you run the program, you're welcomed with an icon bar, as well as a window with several major category selections called the "Services" window. In addition, a standard Windows menu bar offers several additional choices. Notably absent is some sort of icon or menu selection to connect with CIS. Instead, the program will automatically dial in and logon when you select a function which requires a connection. For example, selecting mail features while offline invokes its e-mail interface which can be used without being connected to the service, while picking "News" from the Services window causes WinCIM to dial and connect, then access the news selections. Requests that can be processed offline will be; those that cannot cause it to dial in.

Don't expect WinCIM to hang-up the phone when you access a feature which could be accomplished offline more economically; it'll happily keep you connected while you compose an e-mail novella or review your filing cabinet (WinCIM's general purpose capture mechanism).

The WinCIM interface changes depending on what section of the system you're in. While in a forum, for example, the menu bar has additional selections, and the icon bar changes its selections as well. Many major areas (including the forums) also cause a window to pop-up with additional, contextual icons. In the

forums, these additional icons include direct access to entering a message, scanning file areas (libraries), seeing who is online in the forum, etc. None of the icon-accessed functions are unique; all of the functions are also available in text form from the menu bar and pull-down menus if you prefer a text description instead of a clicking a pretty picture.

The e-mail interface of WinCIM is among its strongest features. Using it online or offline, you can easily compose, edit and send a message via the service. All of CIS' mail features are available, including their Internet gateway. In fact, the online help system offers complete assistance on entering all the pertinent information, including a detailed explanation of Internet addressing. This level of assistance is ready for all of CIS' mail features, although many of the help screens we accessed had typographical and spelling errors.

When a message is entered offline, you place it in your "out basket." The next time you're online, you simply instruct WinCIM to send and receive all mail, and it'll cheerfully comply. Anytime before sending, you can access the out basket to make changes to your outbound messages, including adding or changing recipients.

WinCIM allows you to easily maintain an address book for your e-mail. Almost any type of addressee supported by CIS can be put there, including Internet and fax machine recipients. When you enter a message to someone, you can add them to your address book, or people in your address book can easily be used as recipients. The interface will be familiar to seasoned Windows users; it uses a dual list mechanism — address book entries on the left, recipients for the message on the right — and you can freely copy them from one list to the other. This makes adding new entries to the address book, or recipients for your message, as simple as clicking the mouse button.

WinCIM users will be disappointed with the program on at least one front: access to forums. Like its DOS cousin, WinCIM doesn't exactly go to any great effort to prevent you from spending hoards of

money online in forums. (Needless to say, CIS doesn't really have much of an interest in having you spend less money with them.) Unlike TAPCIS and OZCIS, WinCIM's forum automation is about "half there." In the ideal world, WinCIM would integrate the equivalent of a QWK offline reader for CIS. But this isn't the ideal world.

Just the same, once you're used to WinCIM's interface, you can relatively quickly download a pile of messages from a forum for later reading and replying offline. You can mark particular messages, sub-sections, or entire forums of messages. When you're ready, the messages are downloaded into WinCIM's "filing cabinet," which you can access later while offline. Replies you compose offline are saved to the filing cabinet as well, as you can send them the next time you're online. The sending of messages from the filing cabinet is not as intuitive or automatic as it should be, however.

One flaw with the processing of forum messages is that WinCIM allows you to compose messages larger than CIS actually allows. There is no indication of maximum length within WinCIM, and no warning is given by the program when you submit over-length posts to the forum. Rather, the message is simply truncated when it's posted. When evaluating WinCIM, at least two of my forum posts were truncated in this fashion, leading to some degree of confusion over what I was trying to say among readers.

CIS' libraries (or download areas) are one of the service's most popular resources. WinCIM makes accessing and using libraries as easy as it should have been in the first place. When you're in a forum, you can browse available files, which are presented to you in a window as a scrolling list of files. The list is "buffered" during the connection; as you scroll down the list with your mouse, the file list is actually being sent in "chunks" to avoid wasting too much time sending the entire (and enormous) full list.

When you see a file on the list you'd like to know more about, a mouse click will cause a window to pop-up with complete

details. You can mark files you're interested in, then when you're ready another click of the mouse starts the download. WinCIM selects the protocol automatically.

One of WinCIM's novel features is its ability to display weather maps and weather radar images in real-time. When you access the weather section of the service, you can download the latest electronic satellite images or radar which display right to your screen as they downloaded. Larger weather images are "interlaced" (meaning the image paints in multiple layers) so you can get some idea of the finished product almost immediately even though the complete image takes longer to display fully. The files are merely GIF images, and can be viewed offline after downloading using any popular image viewing software.

The same "view during download" capability can be used when downloading any GIF image from CIS. While in the library, you simply click the "View" button instead of the "Retrieve" button, and the image will be downloaded and displayed to your screen at the same time.

Finding things online with WinCIM is fairly straightforward — the program has a complete system services directory built-in, utilizing the standard Windows hyper-text help system. When you find the service you need, you can click a highlighted keyword on the help screen and WinCIM will issue a "go" command online to take you directly to that service. The only downside is that the services aren't indexed and cross-referenced as well as they could be; we had some amount of difficulty locating some of the subjects we were looking for. It's also not clear how CIS plans to keep WinCIM users updated with the most current directory information.

WinCIM is definitely not perfect; its forum support could be vastly better. For Windows users, however, it makes an otherwise hostile service usable and just plain fun. For those that use CompuServe as a post office, it makes e-mail handling powerful and simple. WinCIM costs \$15 (plus shipping) when

ordered from the CompuServe Store online. If you're in a hurry and don't mind a lengthy file transfer (totaling over 1.5 Meg) the product can be downloaded online for **\$10**, connect time free (communications surcharges still apply). **GO WINCIM** from any prompt. The \$10 is actually rebated in the form of \$10 worth of connect time. The product consists of two files, **DISK1.EXE** and **DISK2.EXE**. Either purchase method includes a \$10 usage credit you can apply against your bill. Maintenance upgrades (of which there have been two at this writing) are made available for download free of charge. WinCIM Version 1.0.2, CompuServe Incorporated, 5000 Arlington Centre Blvd., Columbus, OH 43220; **(614)457-8600**.

INTERNET

NETNEWS (ALMOST) LIVE VIA SATELLITE

by Jack Powers and Lynn Wheeler

Much of the BBS world is struggling toward connectivity with the Internet. And the features most requested by callers are electronic mail and Usenet News Groups. The the caller population wants these groups and they don't want to face a UNIX command line to get them. They want them on a familiar BBS face or via the **.QWK** offline mail readers they are accustomed to using. While many systems are using the UUCP g protocol to connect to hosts for basic electronic mail, the 50 MB daily feed of Usenet News Groups are a bit hard to swallow at the 600-700 cps common with this protocol via a 14.4 kbps modem. The expense of having a machine and modem connected, often long distance, for 14 hours per day getting news groups is daunting even to the larger boards.

And the transfer of these news groups is very asymmetrical. The news groups are compiled from input of thousands of systems around the world. While the feed IN to a BBS may run 45-50MB daily to carry all the various topical conferences available, the output FROM

even larger bulletin boards tends to be under a megabyte per day.

Several months ago, an article appeared in a local news group on a public-access Unix system announcing a satellite broadcast of Usenet news. Talking it over at one of our Friday evening beer busts, we decided that we couldn't resist finding out more. At least two attempts have been made to do a broadcast service like this, both failing for various reasons. We were curious how this one differed from the others, and wondered about the following questions:

How does it work?

Would it include all the news groups, or would it be edited according to someone's whim?

How much does it cost, and what kind of arrangements support the transmission service?

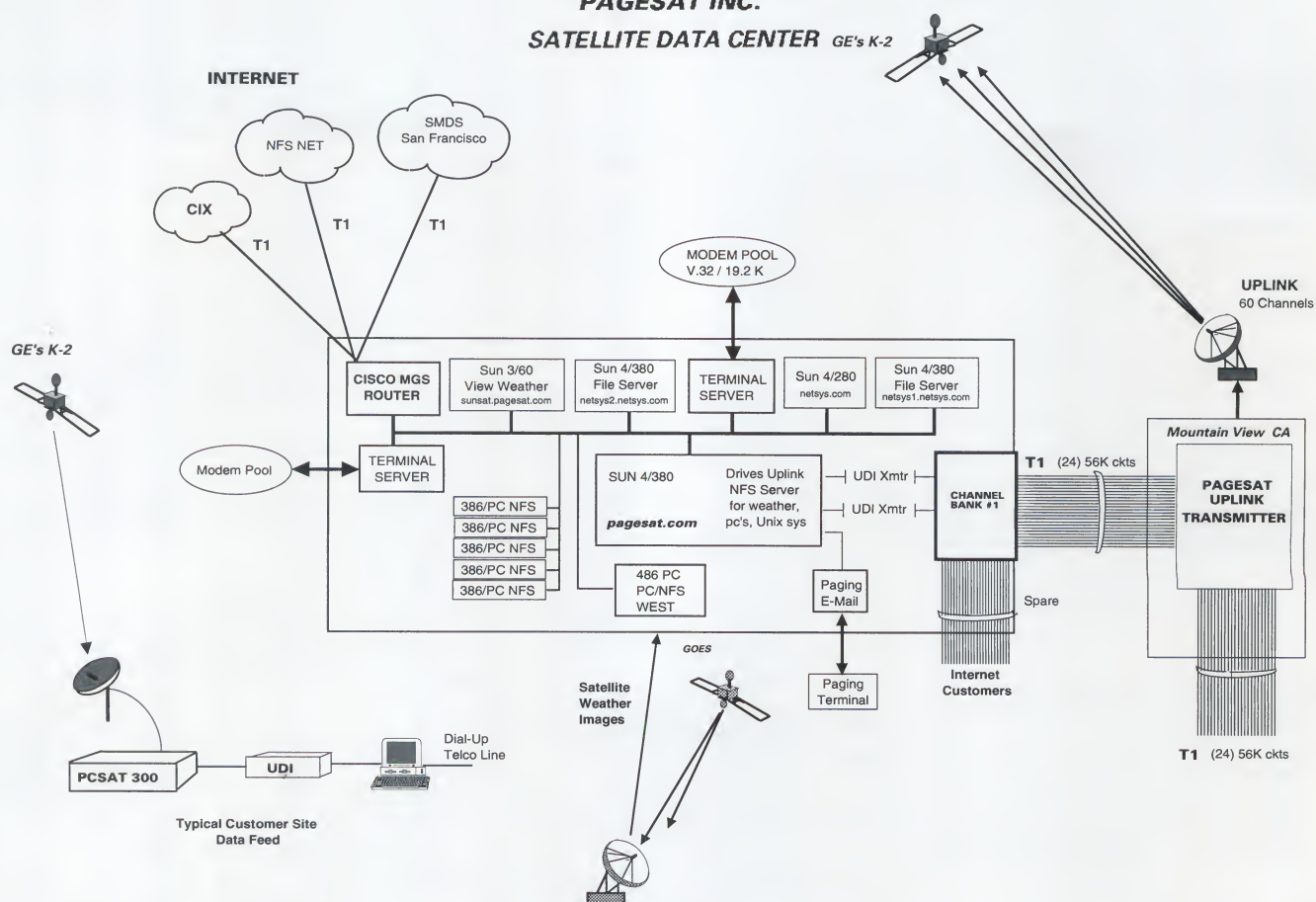
A "telephone-less" way to receive Usenet news would be a real boon to BBS and public access Unix sysops. Instead of tying up a phone line (and running up a bill if on a toll call) to download news, one could point an antenna at the sky and soak it up like a sponge, 24 hours a day. (Outbound postings would still go by phone, but the volume would be a tiny fraction of that received.)

We contacted the poster, Norm Gillaspie, and he explained how the system was put together- it looked promising for people like us, for whom any phone call in the direction of increased civilization is a toll call. One of us suggested that Norm and programmer Len Rose show the system and talk about it the 1992 Hackers Conference, which they did. Following that, we took one to Lynn's home and hooked it up. Here's what we found out.

THE COMPANY

PageSat Inc. of Palo Alto, CA operates a multichannel data broadcast system on the Ku-band satellite K2, used mostly by paging services in need of wide-area coverage. The paging services rent a (voice-grade audio) channel and pipe their data to PageSat's uplink site in Mountain View, California. From there,

PAGESAT INC.
SATELLITE DATA CENTER GE's K-2



Rev. 3/23/93

PageSat multiplexes it with other channels and bounces it off satellite K2, which is about 22,000 miles over the equator. Customers can then receive the signal anywhere in the continental US with a small, inexpensive receiver. Gillaspie, PageSat's President, explains that the channel used for news is only one of a block of them on which he has a long-term lease. In addition, his uplink costs are shared by the paging service business; this permits PageSat to include the first two years of transmission service in the **\$1800** price of the receiver (after that it is \$30 per month).

According to Len Rose, architect and programmer of the system that feeds PageSat's uplink, they transmit all the news from 8 different sources, currently running between 40 and 55 megabytes per day. Feeding the uplink is a trio of three Sun 4/380s linked via NFS, with automatic recovery software that

can restore service in under 30 seconds. Incoming news arrives via multiple T1 (1.5 Mbits/second) internet links, and is broadcast at 9600 bits per second. As volume increases, PageSat may go to data compression (text is 100% clear ASCII now).

There is no censorship or editorial action of any kind, according to Gillaspie. "We're a common carrier, not a publisher", he says, "and we don't get into content issues at all. It's just bits, from our viewpoint."

RECEIVER HARDWARE

The receiver system consists of three pieces, connected by cables:

Model 4518 Antenna System
 PCSAT (tm) 300 Satellite Receiver
 UDI 200 Universal Data Interface

The entire system sells for about **\$1800** (subject to change), and several payment plans are available. Service is free for the first two years, and approximately **\$30** per month thereafter.

ANTENNA

PageSat's antenna looks like one of those little TV dishes seen in areas without cable. It is solid (i.e., not mesh), oval in shape and only about 18 inches across its longer axis, and quite light—the whole kit, mounting hardware included, weighs about 14 pounds. The signals reflected by the Fiberglass-reinforced plastic dish are collected by a feedhorn and low-noise block amplifier (LNB) about the size of a soda pop can. The output of the LNB goes to the receiver via RG-6/U coaxial cable (we used 150 and 100 foot lengths with equally good results). The power for the LNB is supplied by the receiver over the same

cable, so there is no need for an electrical outlet near the antenna once installation is complete.

Adjusting the antenna consists of simply pointing it at the satellite (K2), which is South from anywhere in the US and East from our California location. A metric wrench supplied with the mounting kit is used to tighten nuts after you set azimuth (left-right) and elevation (up-down) angles.

We were surprised how easy it was to find the satellite—with a little practice, we could get a useful signal holding the dish by hand! Instructions include a chart which gives approximate angles for major cities, so if you have a compass, you're already half way there. A small loudspeaker on the receiver is used to "find" the signal and make fine adjustments - simply move the dish on the mount until you find the loudest tone, and then tighten the nuts. (There is a place to connect a meter to measure signal strength, but we found the tone method more useful.) At antenna-pointing time, the job is much easier if you bring the receiver to the antenna location with temporary power via an extension cord, so you can hear the tone and move the antenna at the same time.

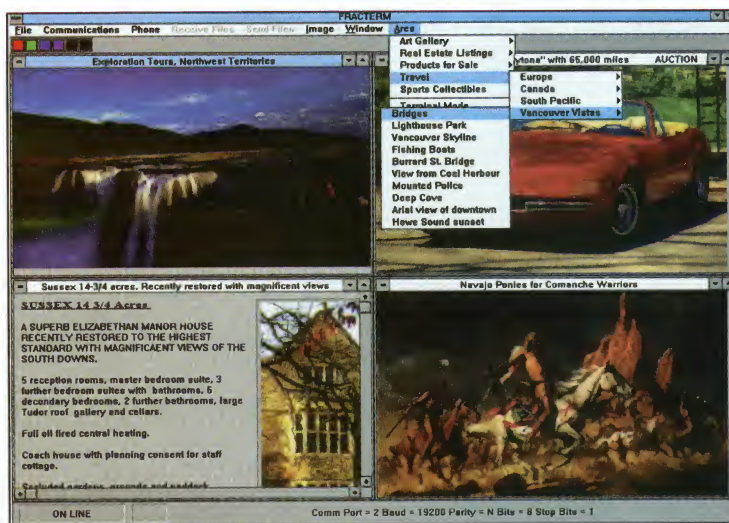
The antenna can be assembled only one way, and the mounting kit is simple and very solid. The simplicity was important, because the assembly instructions are printed in Japanese! There are 3 variations of the mounting kit - wall, corner, and clamp. We installed the wall-mount kit on a redwood fence post planted with a bag of pre-mixed concrete. Not counting preparation of the post, assembly and installation of the antenna took about 30 minutes.

An "offset feed" design is used with this antenna, which works well but makes it hard to estimate the effective elevation (the antenna is really pointing higher than it appears).

RECEIVER

The receiver is a black metal box 8"x12"x2.5" in size. It accepts the 950-1750 MHz signal from the LNB and demodulates a single audio channel, which is selected via switches on the

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front panel. During installation, the switches are used to select the channel with the setup tone; they are changed to the data channel once setup is complete. The output of the receiver is an audio signal carried on a phone cord to the UDI.

UNIVERSAL DATA INTERFACE

This box looks like a modem, which it is, among other things. It detects a synchronous 9600 bit/sec. data stream from the audio input (V.29 standard—same as with Group 3 fax), adds framing bits to convert it to asynchronous format, and makes it available on a standard RS-232 connector. The UDI is housed in a black plastic box about 2" high with a 6.33"x9.5" footprint. The RS-232 connector is female, and wired as you would expect a modem to be—you can move the serial cable from your phone modem to the UDI and you are ready to receive.

FIRST EXPOSURE

Our first exposure to the PageSat system was at Hacker's VIII in November

'92. Early Friday afternoon we stopped by PageSat in Palo Alto and picked up Len Rose along with the PageSat demonstration system for Hacker's. This included a 1.2 meter satellite dish mounted on wedge shaped frame along with receiver, UDI, and an ASCII terminal. Promising to show the system at Hackers was a bit of a long shot, since without a site survey in advance we didn't know for sure that we would be able to place the antenna in a spot where it would have a clear view of K2.

Arriving at the Hackers site (a resort near Lake Tahoe) in the early afternoon, we began carting all the equipment to the equipment demonstration room (located on the 2nd floor). After setting up the display terminal, we decided that the best location for the satellite dish was on the roof of the building accessible via an interior 15' ladder immediately outside the demonstration room. We lifted the satellite dish with a rope and carried the other equipment, (along with an empty flower box and several large rocks) up the ladder. (Climbing a ladder while carrying something is a real trick.).



After several trips up the ladder, all necessary equipment was on the roof. An extension cord and coax cable were dropped over the side of the building and pulled into the window of the demonstration room. We connected the dish to the receiver and approximately "sighted" in on the satellite location, (about 109 degrees compass bearing, according to the charts in the instructions).

By this time, things were starting to get very dark (and cold) on the roof. We proceeded to fine-tune the satellite reception. Using the receiver's speaker and listening for the pilot tone, we moved the dish from left to right and up and down. After a few minutes of fiddling, the tone was coming through loud and clear. The point where the signal was lost in the left and right pivoting was marked and then the dish was approximately positioned half-way between the two pivot points. A similar procedure was used pivoting the dish along the dish in the up/down direction. The satellite dish's frame was then "locked" in place using the flower box and rocks to weight it down.

At that point we disconnected the dish

from the spare test modem on the roof and reconnected it to the coax running over the side of the building into the second floor window of the demonstration room. During the course of the evening we observed that the ASCII terminal with a continuous scrolling display of the incoming news group text was occasionally indicating loss of signal. After several trips to the roof in an attempt to fine-tune the satellite dish position, we finally realized that satellite line-of-sight passed through numerous tall trees on the other side of the resort parking lot. It turned out that the downlink signal reception strength was marginal and the wind in the trees would occasionally cause the signal to drop below a useful level. In general, however, the system seemed to make a good impression on the attendees, some of whom seemed surprised that it worked at all, under the circumstances.

A MORE PERMANENT INSTALLATION

Since Lynn had a good-sized Unix system (AIX on an RS/6000 with 2 GB of disk) at home and I could reach it with a local phone call, we decided to try installing it there first. There were some doubts, as a hill in the general direction of K2 might block the signal. We were able to receive the PageSat test tone standing next to his house, but data reception didn't work. We looked around up the hill adjacent to the house, and found a cable TV connection box about

20 feet up the hill which had a plastic cable duct connecting to the house... if we could place the antenna there, getting the signal into the house would be very convenient. We carried the antenna and receiver to that spot and tested reception with a laptop computer, and it worked well. Confident about signal quality, we pulled 100 feet of RG-6 coaxial cable into the duct and the connection box on the side of the house.

The next step was "planting" a leftover 6' fence post in the ground at the far end of the cable TV conduit and mounting the antenna at the top. We dug a hole and filled it with rocks and ready-mix concrete, and adjusted the antenna angle using the test tone as the concrete started to set. The procedure used was the same as on the roof at Hackers- see where the signal fades out in each direction, (left-right, then up-down) then aim at the midpoint between them. Checking the antenna pointing the next day, we were unable to improve on the original setting.

It was very convenient that the cables and connectors used with the PageSat system are compatible with those used for cable TV. We were able to bring the PageSat signal into Lynn's home office on an RG-6/U cable already installed for TV, after joining it to the one we pulled using an "F-barrel" connector in the box on the outside wall. A short "modular" telephone cord joined the



satellite receiver to the UDI.

SOFTWARE SETUP

Source for PageSat Unix news receiver (receive.c) was provided by Len Rose. Only minor modifications were needed to get it running on AIX 3.1.5 on the IBM RISC/6000.

The RISC/6000 is installed with cnews and nntp version 1.5.11. cnews was slightly modified with files being placed in /usr/local/lib/news and /usr/local/lib/newsbin (instead of /usr/lib/news and /usr/lib/newsbin, respectively). Corresponding change was required to the PageSat program receive.c to specify a news path of "/usr/local/lib/newsbin/input/rnews". This program was also compiled with syslog logging turned on.

The full compliment of crontab definitions, /etc/services, and /etc/inetd.conf were made for cnews and nntp. Definitions for both cnews newsboot and the PageSat receive program were added to the AIX /etc/inittab so that they would automatically be invoked whenever the system is booted.

After a few days of operation, we noticed that when data was being read from the UDI, AIX seemed to crawl, and AIX was giving a lot of CPU time to receive. Lynn modified it to add POSIX min/time specification to the TCSETA ioctl. min was set to 240 characters and time was set to 0.3 seconds. Now, rather than the read command completing as soon as any character was available, the system would not return until either:

- a) 240 characters accumulated in the system input queue or
- b) 0.3 seconds had elapsed.

The modified version uses considerably less CPU time on an AIX system. Other systems may not need or may not benefit from this type of input processing.

Configuration

The current configuration consists of PageSat modem connected to the first async interface on the IBM RISC/6000



**Randy Seuss - Built first BBS with Ward Christensen
Today operates CHINET - shown with PageSat Dish**

model 520 running AIX 3.1.5. The machine has 64 megabytes of real memory and 2 gigabytes of disk storage.

cnews and nntp 1.5.11 is installed on the machine (as well as trn and xrn). "Managing UUCP and Usenet" from O'Reilly and Associates is highly recommended when setting up a usenet news configuration, especially chapters eight, nine and ten. Usenet news is setup in a 400 MB /usr/spool/news filesystem.

At PageSat's news group feed rate of 50+ megabytes per day, news file expirations are set between six to ten days to keep from filling up the file system. There are currently over 80 major news group categories (currently from alt. to uwo.).

The RISC/6000 is connected via thinnet Ethernet to a 486/50mhz EISA-bus machine running Windows 3.1. The 486 machine has 16 megabytes of real

memory, and a 600 MB SCSI disk, AVT 21" 1024x768 display screen, AVT display adapter, SMC Elite16 Ethercard PLUS, multi-function I/O adapter card with two 16550AFN FIFO chips, and an external Intel Satisfaction 400e modem. Under Windows 3.1, the nntp version of Waffle 1.65 BBS software is used to provide external news access. Waffle nntp interfaces to the SMC Ethernet packet driver to access usenet news on the 520.

Windows is configured with the Intel asynchronous interface COM port driver downloaded from the Intel support BBS. Waffle has the COM port locked at 56k bits/sec.

ANOTHER USER'S EXPERIENCE

Another user of the PageSat System is BBS pioneer Randy Seuss (randy@chinet.chi.il.us) in Chicago. On being called "out of the blue" and asked how he likes the system he purchased,



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You started out to build a multi-user BBS. You had dreams about the service your system would provide, the problems you would solve and the money you would make. But you didn't bargain for the pile of hardware you would live with every day and now it controls your life.

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True freedom is the ability to spend your time as you wish. Talk to real multi-user BBS sysops. You'll notice that only TBBS operators talk first about ideas, not hardware and software. For over ten years TBBS has provided them the freedom to design custom systems they can live with.

No one gets more capability with less impact on their life than a TBBS sysop. You can buy 64-user TBBS 2.2 for \$1,995 (32-user \$1,495, 16-user \$895, 2-user \$295) and use the money you saved on hardware to celebrate your success. Call 303-699-6565 for more information and access to a demonstration system.

he replied "I love it." High on his list of benefits are these:

Completeness- he gets all the news groups, including new ones, without having to beg anyone to feed them to him;

Cost- Randy claims that the system has paid for itself in the five months he has used it, saving measured local phone costs over the 8 mile distance to his former news feed;

Reliability- it runs 24 hours per day, weekends, holidays, the Windy City's "snow days", and school vacations included. His former feed at a university had little or no support for extended periods.

Randy was able to talk his landlord into permission to mount his dish on the building's roof, partly because of its small size. He would like to see "semi-interactive" use of the link during slack times, such as being able to call to request news transmitted while his own system was down; otherwise, he is "more than satisfied" with it.

CONCLUSION

While it can't possibly work everywhere, PageSat's system is surprisingly easy to install, and does well even in locations that are less than optimal. It is a boon for people who are not within local calling distance of a news feed, or can't find a source for the desired news groups, and the small dish size let it fit into many locations for which satellite transmission would otherwise not be practical.

For more information on PageSat, contact Len Rose at PageSat Inc., 992 San Antonio Road, Palo Alto, CA 94303; (800)227-6288 voice; (415)424-0384 international; (415)424-0405 fax; Internet: pagesat@pagesat.com or len@netsys.com (Len Rose)

[Lynn Wheeler (blillynn@netcom.com) is an independent consultant with over 25 years experience in the computing industry. During the early 80s, he was responsible for the IBM High Speed Data Transport project. This included both high-speed terrestrial and satel-

lite links. The High Speed Data Transport project included two satellite pilot projects, one involving a six megabit dynamic bandwidth multi-cast TDMA backbone system and a second involving an outbound 1.5mbit T1 satellite broadcast system with low-speed terrestrial return links.

Jack Powers (jackp@well.sf.ca.us) is a telecommunications engineer in Morgan Hill, California, where he started his own business after over 22 years with IBM. He now designs telecom hardware and software for multimedia and other applications. He is co-author of Megabit Data Communications (Prentice-Hall, 1990) and has written for PC and PC WORLD magazines. - Editor]

WHITE HOUSE MAILING LIST

The new administration in the White House, if nothing else, is promising to be a more "electronic" administration. The speculation over what will become of what is variously referred to as the National Data Highway or the National Information Infrastructure is pretty much all over the map. But on more mundane communications topics, the White House is definitely becoming more "connected," in large part due to the efforts of Jock Gill of the Office of Media Affairs. Mr. Gill has been tasked with the electronic presence of the White House online and I suppose you would call him the White House Sysop.

Currently, the communication is less than perfect. There are discussion areas or forums where you can discuss the current administration. There are "broadcasts" of information from the administration via mailing list. There are archives offering a treasure trove of policy documents, past speeches, etc. And there are mailboxes where you can direct e-mail to the administration. All are operational, but some work better than others. The result is that you have electronic access to more information, and more current information, about the government than ever before in history. The full text of the AM press briefing at the White House can literally be in your own e-mail box

shortly after 2:00 PM of the same day.

FORUMS:

The White House has a presence on a number of online services. On CompuServe, you can **GO WHITE HOUSE** to find a forum with some 17 discussion topics regarding the current administration. On America Online, they similarly have a **WHITE HOUSE** Forum under the News & Finance section of the service, accessible via keywords **white house** or **clinton**. MCI Mail offers a series of White House bulletin boards including **WHITE HOUSE ECONOMIC**, **WHITE HOUSE FOREIGN**, **WHITE HOUSE SOCIAL**, **WHITE HOUSE SPEECHES**, and **WHITE HOUSE NEWS** you can access by entering **VIEW WHITE HOUSE**. FidoNet now has an echomail conference titled **WHITEHOUSE**. On the WELL, type **whitehouse**. And the following Usenet Newsgroups are under direct distribution from the administration:

alt.politics.clinton
alt.politics.org.misc
alt.politics.reform
alt.politics.usa.misc
alt.news-media
alt.activism
talk.politics.misc

MAILING LIST

The information tends to be similar on each service, and the source of all of it is a mailing list on an experimental mail server set up by the MIT Artificial Intelligence Laboratory during the campaign. It is still in operation and the White House Communications Office is distributing press releases and other information to this mailing list.

The service offers information in five categories including:

Economic Policy
Foreign Policy
Social Policy
Speeches
News

You can select these categories and sign up for this news group by sending e-mail to Clinton-Info@Campaign92.Org

with **RECEIVE ECONOMY**, **RECEIVE FOREIGN**, **RECEIVE SOCIAL**, **RECEIVE SPEECHES** or **RECEIVE NEW** in the subject field. If you want all of these releases, enter **RECEIVE ALL** in the subject field. Similarly, you can cut off any distribution by sending e-mail to the same address with **REMOVE ECONOMY** or **REMOVE ALL** in the subject field. You can also receive detailed instructions by sending e-mail with a **RECEIVE HELP** subject field.

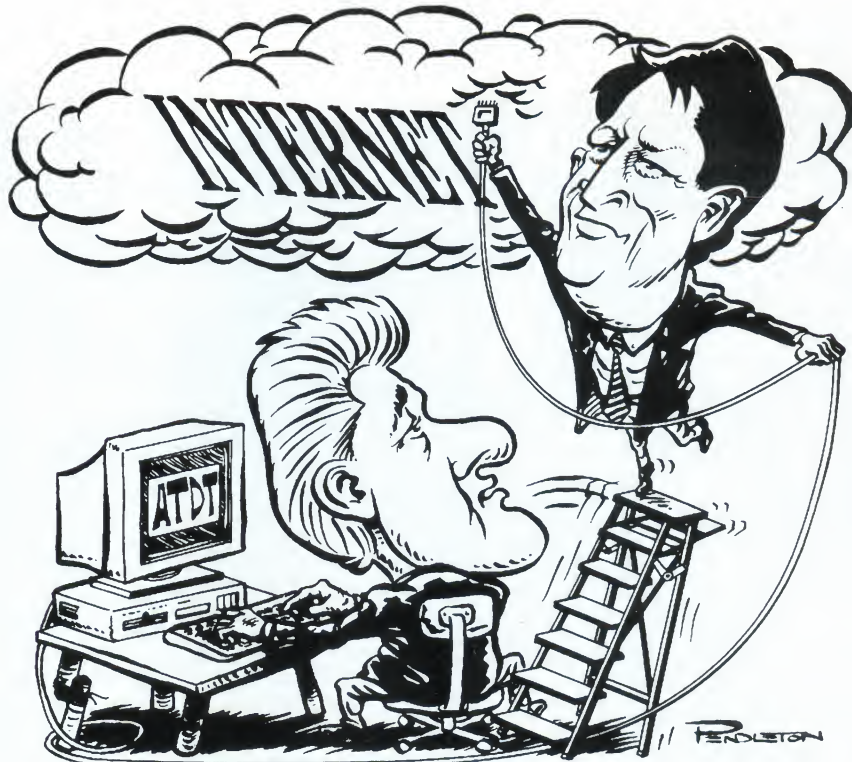
The service really does send a wealth of detailed information, including the full text of speeches by President Clinton and Vice President Gore. We received the full text of VP Gore's opening comments at the Forest Conference at the Oregon Convention Center and also the full text of the President's closing comments at this affair. In fact, we found the text of press conferences, and questions and answers from less formal photo opportunities with Egyptian President Mubarek, the President's remarks on a trip to Baltimore, a disaster declaration for Nebraska and New York, Clinton's remarks in Vancouver, and more. Virtually anything the President says in public is transmitted in full text format. Additionally, you'll find background briefings by senior administration officials, position papers, and even AM and PM press briefings by George Stephanopoulos and Dee Dee Myers. All in all, this is the richest fount of text information ever to be this widely distributed from our government. The daily output is realistically more than you can read.

ARCHIVES

If that's not enough, there are several Internet archive sites that save ALL of them in historical files accessible by ftp.

Additionally, the information is archived on the **FedWorld BBS** at (703)321-8020.

The sunsite.unc.edu archive is particularly interesting. As of April 8, they had the entire U.S. Budget in a single file (over a megabyte actually). To access the file, ftp sunsite.unc.edu (152.2.22.81) and change directories to /pub/academic/political-science. The file is US-Budget-1993.



Try it now Bill...

DIRECT E-MAIL:

If you expect to send an e-mail message to the President and get a personal reply 10 minutes later, we think NOT. In fact, generally, the procedure is to send e-mail to the White House, and include your **STREET** mailing address. Some months, years, or longer later, they will mail you back a reply on paper. But a relatively committed staff is working to improve this situation.

The following addresses seem to be actively monitored:

CompuServe: **75300.3115**

America Online: **clinton-pz**

MCI Mail: **589-5485**

Internet: **clinton-hq@campaign92.org**

LIBERTY NETLINK - 2584 INTERNET SERVICES FROM A SINGLE MENU

I still recall with some awe the feeling of excitement I had when a slickly dressed gentleman at a St. Louis home show demonstrated a new service titled CompuServe in 1979. They had the St. Louis Post Dispatch classified ads on the system at that time. "You want a car? What kind of car? What year? Well, here are three - how about a yellow one?" He would ask people in the crowd what they wanted and magically make it appear on his little terminal. He had us all convinced that EVERYTHING known in the world was on this service.

WHITE HOUSE FTP ARCHIVES

SITE

maristb.marist.edu
sunsite.unc.edu
ftp.cco.caltech.edu
cpsr.org

DIRECTORY

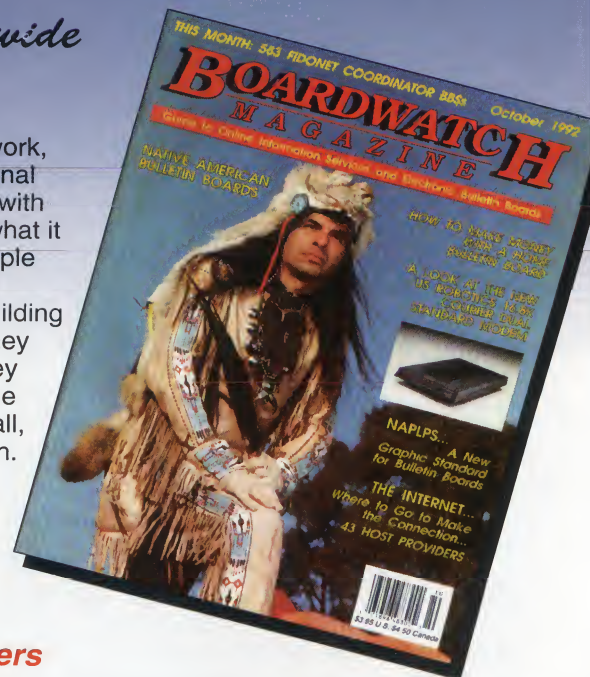
/clinton
/home3/wais/white-house-papers
/pub/bjmccall
/cpsr/clinton

BOARDWATCH MAGAZINE

Guide to Online Information Services and Electronic Bulletin Boards

Connect Your PC to the World...

More Than 70,000 Bulletin Boards Worldwide Await Your Call!



It's a new world out there. Thousands of individuals re-creating the way we live, work, play, and communicate using a fascinating new technology to connect their personal computers in the night. And each month since 1987, Boardwatch has been there with the latest in who's doing it, how they did it, why anyone would want to do it, and what it might mean in the future. Find out about a new cottage industry thousands of people are leaving corporate America forever to join as independent BBS operators and online information workers in a new information economy. The people who are building the tools for this new industry read Boardwatch every month — so should you. They know about dozens of fascinating, free, government-run information services. They learn about software and hardware developments that drive the advances in online technology. They know who the movers and shakers are in the industry. Most of all, they get information they need to be a part of it — and they get it from Boardwatch.

BOARDWATCH MAGAZINE
RECORDS LIST OF BULLETIN BOARD SYSTEMS, ACCESS NUMBERS, AND CONTACT INFORMATION

SERVICE	PHONE	LOCATION	DESCRIPTION
1. America Online	1-800-762-2838	Bellevue, WA	Commercial
2. CompuLink	1-800-368-3636	Bellevue, WA	Commercial
3. Compuserve	1-800-368-3636	Bellevue, WA	Commercial
4. EUnet	1-800-368-3636	Bellevue, WA	Commercial
5. FidoNet	1-800-368-3636	Bellevue, WA	Commercial
6. GEnie	1-800-368-3636	Bellevue, WA	Commercial
7. Internet	1-800-368-3636	Bellevue, WA	Commercial
8. Prodigy	1-800-368-3636	Bellevue, WA	Commercial
9. The World	1-800-368-3636	Bellevue, WA	Commercial
10. Usenet	1-800-368-3636	Bellevue, WA	Commercial

National Listings

Local Area Lists

BOARDWATCH
LIST OF BBS LIST KEEPERS

This listing comprises a list of those who compile and maintain lists of bulletin boards, either by topical category, or by some geographic area or location, or by area code. The primary bulletin board system where the list can be downloaded electronically is also included.

NAME	PHONE	LOCATION	DESCRIPTION
1. America Online	1-800-762-2838	Bellevue, WA	Commercial
2. CompuLink	1-800-368-3636	Bellevue, WA	Commercial
3. Compuserve	1-800-368-3636	Bellevue, WA	Commercial
4. EUnet	1-800-368-3636	Bellevue, WA	Commercial
5. FidoNet	1-800-368-3636	Bellevue, WA	Commercial
6. GEnie	1-800-368-3636	Bellevue, WA	Commercial
7. Internet	1-800-368-3636	Bellevue, WA	Commercial
8. Prodigy	1-800-368-3636	Bellevue, WA	Commercial
9. The World	1-800-368-3636	Bellevue, WA	Commercial
10. Usenet	1-800-368-3636	Bellevue, WA	Commercial

List of BBS List Keepers

Short on theory and long on facts, access numbers, and contact information, Boardwatch delivers stories on the global Internet, commercial online services, and bulletin boards — you can dial immediately with your modem. Each issue brings you 500 to 1000 access numbers under topical lists, geographic lists, and our own select national list of bulletin boards. More, we list the people who keep lists in various cities, and under various topics, all over the world, so that you can dial and download the latest lists of bulletin boards from their source. Nobody digs out more numbers and more bulletin boards than Boardwatch Magazine.

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City: _____ State: _____ Zip: _____

Logon Name: _____ Password (8 Chars max) _____

MC/VISA # _____ Expires: _____

U.S., Canada, Mexico

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| <input type="checkbox"/> Two Year Printed Magazine - \$59 | <input type="checkbox"/> Two Year Magazine AND BBS Access - \$89 |
| <input type="checkbox"/> One Year Overseas - BBS Access Included - \$99 | |

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(303)986-8754 Fax

You could find ANYTHING.

I quickly got over the fascination with CompuServe once I learned they didn't QUITE have everything, and they DID fancy a bit of my pin money for the crawling 300 baud connection, and perennially stalled menus. But I do remember the excitement. And I've got it again.

It is stated and restated that there are thousands of hosts and thousands of services on the Internet. But what does that mean? Every time I ever made the connection to my dialup account, all I saw was the prompt **TEAL%**. It didn't even blink. It just sits there with the endless patience of UNIX, waiting for ME to make the next move. The thousands of services available aren't readily obvious.

But I did recently stumble across one service titled LIBERTY operated on an HP 9000 at the Washington and Lee University Law School. John Doyle runs this system, and they have put together one of the most awesome knots of information available on the planet. On their MAIN menu alone, the system offers direct gateways to some **2,584** other Internet services, including bulletin boards, game systems, Internet Real-time Chat services, Wide Area Information Servers (WAIS), Gophers, Archies, FTP sites, libraries, online databases, information text files, World Wide Webs, and other services. Over 1000 OTHER gophers merit their own submenu, some 170 FTP sites get another. And we have fallen in love with this service. It is with some pain that we splash the pages of Boardwatch with this news, because the service is SO good, we can't picture it remaining open to the public with the loading it will undoubtedly receive once the word gets out on this service. This is **THE BIGGEST BBS IN THE WORLD**.

To access the system, telnet to **liberty.uc.wlu.edu**. The IP address is **137.113.10.35** for the numerically inclined. You will face a login prompt. *Simply enter* **LAWLIB**. No password is required.

And there you will find the longest main menu structure in the free world. On

our first visit there were over 1100 entries. Two weeks later we checked back, and they listed 2584 entries of awesome breadth and variety. Virtually every FREENET on the planet. Most of the Library card catalogs, not only in the United States, but around the world - in Heidleburg, Sogang, Crete, Lyon, etc. And lots of text files. A list of astronomer's e-mail addresses, observations and status reports from the Hubble Space Telescope, the Space Shuttle Earth Observation's Project Photo Database, the Holocaust and Fascism Archives, the Federal Register, the Swiss Electronic Phonebook, dozens of Multi-User Dungeons games, U.S. Supreme Court decisions, sports schedules, weather forecasts, a database of all known gene sequences, census information, information on live-stock production - it was very nearly endless.

The effect was that this man has created at least a text window to the Internet he calls Netlink. And while it undoubtedly doesn't link you to ALL the services available for telnet on the Internet, it is a significant sampling. A menu for the global world. And we literally spent all night browsing through this treasure trove of "stuff."

Note that MOST of these menu entries take you back out over the net to other services via gopher, telnet, or WAIS logons - you are actually traveling the globe from one menu entry to another. And we were both surprised and delighted at how ubiquitous one function is becoming on the Internet - if you see something you like, point to it and the system, whatever system you might be on, will offer to send it to you. You don't need to deal with the vagaries of download protocols. Just note that you would like to have it e-mailed - they deliver. It just shows up in your e-mail box later. The ultimate convenience in shopping, and it is now showing up on MOST services we tried. It's a common feature on gopher software.

One file you should grab before they close the doors on this system is the **NETLINK.SCRIPS** file. This shows the connection to make to ANY of the services listed on the Liberty Netlink

menus. And you are encouraged to make them directly yourself, to avoid loading the system. But our fascination with accessing the entire planet, and of course everything there was to know on it, knew no bounds. This is the most fascinating online service we've ever seen. We brainstormed for hours as to how to put the entire menu in the pages of Boardwatch - but it was not to be. It would take 30 pages in any format you could read just for the main menu. For more information, e-mail to **doylej@liberty.uc.wlu.edu**.

NATIONAL INFORMATION INFRASTRUCTURE - DR. CERF GOES TO WASHINGTON

The following is the written testimony of Dr. Vinton G. Cerf, Vice President Corporation for National Research Initiatives and President of the Internet Society, to the US House of Representatives Committee on Science, Space and Technology, Subcommittee on Technology, Environment and Aviation. Dr. Cerf delivered this testimony March 23, 1993. As one of the most respected proponents of the Internet, virtually from birth to present IP, Dr. Cerf's recommendations to congress over the final form of what a National Information Infrastructure should look like will carry a great deal of weight and we thought it appropriate to carry the entire text of his testimony in this issue. Dr. Cerf can be reached at **vcerf@CNRI.Reston.VA.US**, Corporation for National Research Initiatives, 1895 Preston White Drive, Suite 100, Reston, VA 22091; **(703)620-8990**; **(703)620-0913**

INTRODUCTION

Mr. Chairman, distinguished members of the subcommittee and guests, my name is Vinton G. Cerf and I am Vice President of the non-profit Corporation for National Research Initiatives (CNRI). I also have the honor to serve as President of the Internet Society (ISOC), which is a professional society of individuals who are users, developers or operators of the Internet. My remarks today are personal in nature, but they are colored by my past and present professional experiences which

form the backdrop against which my opinions and observations have evolved.

I worked on the ARPANET project while a graduate student at UCLA in the early 1970s, helping to develop the protocols used to support communication between the computers (hosts) on the network. The highly successful ARPANET experience with packet switching technology led to additional satellite, mobile radio and local area packet networks, developed under Advanced Research Projects Agency (ARPA) sponsorship and, in the case of Ethernet, at the Palo Alto Research Center of the Xerox Corporation. Dr. Robert Kahn, now the president of CNRI, initiated an ARPA internetting research program to explore techniques to connect different packet networks in such a way that the host computers did not have to know anything about the intermediate networks linking them together. Dr. Kahn and I developed the idea of gateways and wrote the first specification for the basic TCP/IP protocols now used in the Internet.

The idea behind Internet was the seamless linking of many different kinds of packet switched networks. I came to ARPA in 1976 to manage the Internetting research program and by the time I left ARPA in 1982, the TCP/IP protocols were widely used and the Department of Defense had declared them standards for military use. The Internet has blossomed in the subsequent 10 years, particularly after the National Science Foundation (NSF) introduced the NSFNet as part of the Internet in the mid-1980s. In 1982, there were about 100 computers on the ARPANET and a few score others were part of the NSF-sponsored CSNET which also used the Telenet public data network. In 1993 there are over 1.5 million of them. The system links over 10,000 networks in roughly 50 countries. Although it is not known for certain how many users there are, we believe there are well over 5 million. The system is tied into most public and many private electronic messaging services and this expands the population able to exchange email to some 15 million. They include business people, academics, government workers, scientists, engineers, librarians, school-

teachers, astronomers, oceanographers, biologists, historians, reporters, attorneys, homemakers, and secondary school students.

The system is doubling annually in users, networks, hosts and traffic. In some parts of the Internet, such as the NSFNet backbone, traffic growth rates as high as 15% per month have been measured. Internet is growing faster than any other telecommunications systems ever built, including the telephone network. Today, over half of the networks registered are associated with business users. Of course, these rates of growth cannot continue indefinitely, but there is reason to expect that the user population will exceed 100M by 1998.

Perhaps even more important, this federal investment in research has created new industries revolving at first around the hardware and software of Internet technology, and more recently, around network and information services supported by the Internet. The new businesses (such as Sun Microsystems, 3COM and Cisco Systems) have highly positive international trade balances and phenomenal growth, commensurate with the rapid growth of the Internet itself. The growth rate is extremely strong in Europe, South America and the Pacific Rim creating major export markets for the US firms offering Internet products and services.

In 1975, operational management of the ARPANET was transferred to the Defense Communication Agency (now the Defense Information Systems Agency - DISA). In the mid-80s, the National Science Foundation (NSF), the Department of Energy (DOE), and the National Aeronautics and Space Administration (NASA) joined in supporting the evolution of the Internet and developing and applying its technologies. In addition to developing their own networks (that became integral components of the Internet), these agencies participated in the development and standardization of the Internet protocols (TCP/IP Protocol Suite) and provided support to the secretariats of the Internet Architecture Board (IAB) and Internet Engineering and Research

Task Forces (IETF and IRTF). This included support for the Internet Assigned Number Authority (IANA), document editor (RFC Editor), and Network Information Centers which provide information and assistance to users and deal with Internet network address assignments. ARPA, NSF, DISA, DOE and NASA now make up part of the Federal Networking Council which continues to oversee the development of networks used in government-sponsored research and education.

Formed at the beginning of 1992, the non-profit, professional membership Internet Society provides an institutional framework for carrying out a variety of activities intended to foster the continued growth, evolution and application of the Internet. Included in this undertaking is the responsibility for the technical standards used in the Internet. Along with members of the Federal Networking Council, the Internet Society supports the IETF Secretariat. It sponsors conferences and workshops on the Internet and its technology, is establishing liaison relationships with the International Telecommunication Union (ITU) and Organization for International Standardization (ISO), works with various United Nations agencies (e.g. UN Development Program) to encourage the acquisition and use of Internet facilities in technologically-emerging countries, and participates in efforts to extend Internet services from university and research library communities to secondary school systems.

The Internet Society does not operate any of the thousands of networks that make up the Internet, but it assists service providers by providing information to prospective users and involves product developers and researchers in the evolution of Internet technical standards. Corporate and individual, professional support for this organization is widespread and international in scope.

HIGH PERFORMANCE COMPUTING AND COMMUNICATION

The High Performance Computing Act was signed into law late in 1991. The

original impetus for this legislation came from then-Senator and now-Vice President Gore whose vision of information superhighways limned the potential of a computing and communications infrastructure which would permeate and stimulate the government, business and private sectors of the US economy. The promise of a vast new economic engine equal to or larger than the engine sparked by the National Highway Act of 1956 was a powerful incentive for this bill and lies at the heart of the motivation for creating a new National Information Infrastructure.

One of the key elements of the HPC initiative is its National Research and Education Network (NREN) program. Designed to extend the performance envelope of networking into billion bit per second (gigabit) territory and to extend the scope of access to a larger segment of the research and education communities, the effort spawned a major research program on gigabit networking. ARPA and NSF jointly funded an effort, organized by the Corporation for National Research Initiatives, to establish multiple gigabit testbeds across the United States.

The program is highly leveraged, involving major contributions from the computing and communications industries as well as several of the national laboratories and major research universities.

An important focus of the gigabit testbed program is to discover by experimentation which technologies and applications are likely to form the core of the high performance communication systems of the future. The deep involvement of industry is intended, in part, to assure that the results take into account the plans and capabilities of the private sector. Such partnerships among government, industry and academic institutions form a bedrock upon which new national infrastructure can be founded.

The vision of the NREN component of the HPC effort begins with the existing US component of the global Internet. Under the NREN program, key parts of the US Internet have been extended

to operate at 45 million bits per second (in particular the NSFNet) and procurement of higher speed services by DOE and NASA is in progress. The gigabit testbed program is enabling the early availability of very high speed network technology and the results of the program will help to determine the architecture and technology of even higher capacity services.

The NSFNet initiative, which began in 1986, has also led to the creation of dozens of new Internet service providers, including a number of for-profit networks offering unrestricted Internet service to all who desire it.

Another fundamental motivation for the high performance networking component of HPC is the intense investment by the principal interexchange and local exchange telecommunications carriers in the US in the use of optical fiber in their networks. Capable of supporting operation in the billions of bits per second, the optical networks form the strands from which a national gigabit fabric can be woven. Investments by local exchange carriers and cable companies to increase the capacity of the lines reaching business and residential customers make it possible to envision a time when very high capacity services can be supported on an end-to-end basis.

The far-sighted vision of the HPC effort, together with the explosive growth of the Internet and basic communications facilities resulting from private sector initiatives, have set the stage for a dramatic new step in the evolution and convergence of computing and communication: the creation of a National Information Infrastructure.

INFRASTRUCTURE

Information Infrastructure is the common ground on which computer-based products and services depend to achieve commonality and interoperability. Included in infrastructure are technical standards and the organizations and procedures through which they are developed; communication services and the physical, human and organizational resources needed to deploy, maintain and operate them;

legal and regulatory frameworks which encourage cooperative development of precompetitive technology, foster the protection of computer-accessible intellectual property, the protection of privacy, and support the conduct of electronic commerce; widely available computer software for many hardware and operating system platforms establishing ubiquitous and interoperable computing environments in which applications can be embedded. Infrastructure supplies the raw material out of which limitless applications may be constructed.

Some of the characteristics which mark elements of infrastructure include: ubiquity, expandable capacity, simplicity of use, applicability to many uses and broad affordability. A functioning information infrastructure will lower technical and economic barriers to the introduction of computer-based products and services. It will simplify the discovery and ordering of products and services as well as billing for their use or acquisition. It will also facilitate the day-to-day operation of businesses, government, education, health care and all the myriad activities that rely increasingly on the use of computer and communication technology to accomplish their objectives.

Infrastructure has an enabling character. The highway system enabled the suburban housing boom and convenient, door to door delivery of goods. Of course, it also stimulated the automobile industry and travel. The power generation and distribution system enabled the facile application of fractional horsepower motors and a vast array of other electrical appliances wherever they were needed.

Infrastructure development is almost always preceded by critical inventions which motivate the need for the infrastructure. The light bulb preceded and motivated the need for power generation and distribution. The invention of the internal combustion engine and its application in automobiles motivated the need for better roads, service stations, gasoline refining and distribution. Once the roads were in place, their ubiquity and easy accessibility stimulated the production of a vast

array of different vehicles, all designed to conform to certain common constraints (size, height, weight) so as to be usable on most of the roads in the system.

The computer is the automobile of the information infrastructure. Laptops are the sports cars; desktops are the sedans; supercomputers are the formula 1 racing engines; and gigantic mainframe data storage systems are the 18 wheelers. The local access networks form the neighborhood streets; high capacity computer networks are the superhighways; and circuit, cell and packet switching systems form the complex interchanges.

Just as vehicles on the road can be filled with an endless variety of people and products performing a multitude of services, software applications fill the empty computing vessels to create the new products and services of the information infrastructure. Communication protocols and standards form the rules of the road. When traffic jams and accidents occur, we call on emergency services to assist. The same may prove true for the information infrastructure when viruses infect the system or other software and/or hardware failures occur; we will need comparable emergency assistance to restore critical services and functions.

The Electronic Frontier Foundation speaks of computers and computer networking as a frontier in cyberspace. This is an interesting and apt analogy, given the relative immaturity of both technologies. Despite the apparent sophistication of today's computers, networks and software, their application has barely scratched the surface of the latent possibilities. The notion of frontier raises images of boundaries and limits. But cyberspace is a virtual place. It is created out of software, making cyberspace an endlessly expandable environment.

Information is, itself, an infinitely renewable resource to be harvested, shaped, applied and recycled. The products and services which can be built atop the computer and communication infrastructure simply have no logical limits. It is this ceaselessly changing,

growing, transmuting information resource which will fuel the economic engine of the information infrastructure.

INFORMATION INFRASTRUCTURE FORMATION

The technical challenges to be overcome in creating a national information infrastructure may only be overshadowed by some of the legal and policy problems. Taking the easier ones, first, it should be apparent that standards for the exchange of a variety of types of information (data) are essential. The value of infrastructure is that providers of two services which must interwork do not have to make bilateral agreements with every partner if appropriate technical standards are developed which enable such interworking. In the case of program (software) interworking, common representations of shared information must be agreed upon so that software developers can be reasonably assured that, if they follow the protocols, their application programs will interwork with each other.

A variety of high and low-level standards are needed for representation of digital documents; information retrieval queries and responses; remote program interactions; financial or other commercial transactions; privacy, integrity and authenticity preservation; and a plethora of application-specific standards for information interchange. These representations need to include the capability for a wide range of media, including sound and pictures. There are a number of representations available for encoding these various media, but there is not yet widespread agreement on a common set. Consequently, we are still some distance away from a workable information infrastructure.

The applications that can be supported on a suitable information infrastructure are limited only by imagination and creativity. Examples include health care support (e.g., patient information, prescription databases, digitized X-Rays and MRI scans), remote consultation; education (classrooms without walls, using the information infrastructure to receive instruction, explore digital libraries and work with distant part-

ners), manufacturing, provision of government information, and support for electronic commerce (e.g., order entry, electronic or physical delivery of products, electronic payments, product specifications).

An important element of Internet growth is the typical pricing strategy of service providers: flat rates based on the bandwidth of the lines used to access the Internet. Unlike some commercial email and other public data network service providers, Internet service providers have not charged by the packet. Many believe that this policy has had a major, positive effect on the growth of the network because users had little uncertainty with respect to annual costs for use of the system.

ANECDOTES FROM THE 21ST CENTURY

Those of us who have lived with the Internet since its inception have been living in what will be common in the next century. In preparation for this testimony, I sent a brief message out on the Internet to hundreds of thousands of people who make daily use of the network. I asked them to offer their thoughts on points they considered important to make. Within hours, I had thousands of responses, not just from domestic sources but from all over the world. Without the infrastructure of the Internet, such a question would not have been worth asking since the answers would have taken far too long to receive, and I could not have applied available computer cycles to sort and sift the resulting responses. My correspondents were almost uniformly enthusiastic about the prospects for national and global information infrastructure. The following were some of the points they made:

The Internet Society newsletter is created by correspondents all over the globe who email their stories to the editors in Los Angeles, California and Reston, Virginia. The whole process takes places over a few days, with all the editing taking place on-line. Each issue is available on-line within minutes of completion through a variety of information services on the Internet.

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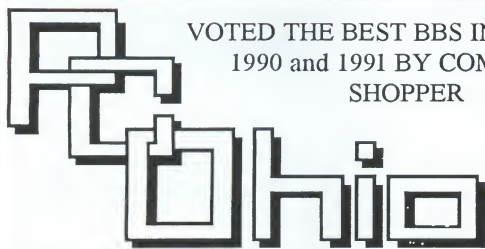
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A professor at the University of Southern Louisiana offered to teach a class on Internet use through email on the Internet. 15,000 people applied to take the class! This is distance-learning with clout!!

A blind student of Shakespeare asked on the net, where can I get on-line copies of the plays, it's the only convenient way for me to read them. He uses a text-to-speech and text-to-Braille device. He got back many pointers to on-line archives around the world.

When President Clinton and Vice President Gore were visiting Silicon Graphics in California's Silicon Valley, the audio and video of the speeches were packetized and multicast on the Internet to hundreds of participating sites. This is an example of the nascent potential in combining all forms of communication in computer-mediated form.

Internet Talk Radio recently made the front page of the New York Times - it is another example of the convergence of digital computer communications and mass media.

When I needed information about the Spratley Islands, I just turned to the CIA World Fact Book made available on the Internet by the University of Minnesota.

A technical problem arose with an application running on an Apple Macintosh. The user sent an email message to several distribution lists and news groups and got back helpful responses, some in minutes, from France, Germany, Italy, Australia, India, Singapore, Canada, England, Norway, United States, Finland, ... well, you get the idea. Cyberspace has common interest groups that transcend national boundaries.

The city of Wellington, New Zealand, has a computer on the Internet. It has placed there a wide range of information of interest to potential visitors and tourists, local residents, and Internet explorers. There is strong historical evidence that the rich personal interactions that take place on the Internet contribute to a marked in-

crease in face-to-face meetings requiring travel, so the local government is to be commended for its foresight.

IMPORTANT THINGS THE US GOVERNMENT CAN DO

Offered below is a representative set of comments and suggestions received over the course of a few days from the Internet community. Because of its source, it has an obvious Internet bias to it, but despite that, I think these ideas are worthy of serious consideration.

1. Invest in the development of pre-competitive software and technology which is made available to industry for competitive productizing. Historically, universities have developed sample implementations of new Internet software which is then used as the basis for product and service development in industry. Occasionally, industry will sponsor development of freely available software which can be readily distributed throughout the network, creating a kind of mini-infrastructure on which more elaborate, for-profit products and services may be based. In both cases, new businesses are often created to service the market created.

2. Foster and facilitate the development of technical information standards through cooperative efforts among industry, academia and government. The procedures of the Internet Engineering Task Force are a model for expeditious and effective development because the standards must be implemented by multiple parties and shown to interoperate before they are eligible for standardization.

3. Revisit COCOM and US-specific policy on the application, use, and export of the RSA and DES cryptographic technology. Present policies inhibit the creation of particular aspects of global information infrastructure and, in some cases, U.S. companies are placed at a severe disadvantage relative to competitors. These technologies are key elements [no pun intended] in solving problems of intellectual property protection and management and

electronic commerce in an on-line environment.

4. Adopt the TCP/IP protocols as coequal with the OSI protocols in the US GOSIP specifications (which describe the profile of protocols that are recommended for use in Government procurements). The TCP/IP protocols are already in wide-spread use within the government, so this change would merely acknowledge reality.

5. Move aggressively to support library access to Internet services, with particular attention to rural community access.

6. Institute training programs to educate the nation's secondary school teachers and support staff on the use of computer and communication technology in the classroom. Subsidize access where this is necessary. Involve state educational infrastructure in this effort. Review highly successful state-level programs as input to national policy development.

7. Stimulate the development of quality software for use in curricula at all levels. Consider programs to develop pre-production software and make it available at no charge, leveraging the creativity of national laboratories, universities and individuals.

8. Mandate public, on-line availability of government-produced or sponsored information and allow the private sector to add value and resell it. For example, the White House is providing on-line access to unclassified executive orders and text of speeches by senior administration officials within hours (and sometimes minutes) of their release.

9. Foster programs to explore and experiment with the use of information infrastructure to support telecommuting. Not only as an energy-saving, pollution-reducing step, but a major tool for implementing the Americans with Disabilities Act provisions. It was noted that home-employment and suburban satellite offices illustrate that electronic communication infrastructure is approaching the importance of the more concrete (pun

intended) traffic highways.

10. Make use of the Internet to harvest information from its tens of thousands of public databases as an adjunct to intelligence gathering and analysis by various agencies of the federal government. Make available government unclassified information and analysis via the Internet as a contribution to the community (e.g. CIA World Fact Book).

11. Get all branches of the government on electronic mail and support the ability to exchange email with the public.

12. Encourage the deployment of ISDN services.

13 Foster the development of shared scientific databases and collaboration tools which can be used to enhance the utility of research results and provide access to raw as well as analyzed data to support corroborating research.

14. Make use of the Internet to build bridges among the scientific, research, academic and educational communities.

15. Link the museums of the world on the Internet.

16. Avoid the unintentional creation of a gap between information rich and poor. The concern here is that private sector entrepreneurship may conflict with freedom of access to public information. Note that the potential gap problem applies equally as well to individuals and to large and small corporations!

17. Position national policy so that the government need not subsidize network service providers. Rather, subsidize users, where this is appropriate. By this means, remove most of the Appropriate Use Policy dilemmas from consideration at the network level. It is not technically possible today, using existing capabilities, to distinguish different classes of traffic at the network level. [There were a few people who thought the government should build the National Information Infrastruc-

ture but the vast majority who commented on this preferred private sector service provision, albeit under government policies which assure ubiquity of service, full interconnection of all service providers and reasonable costs].

18. Find a way to make advertising permissible and useful in the National Information Infrastructure.

INTERNET GROWTH

According to SRI International, the Internet added some 586,000 IP hosts during 1992 to a current total of 1,313,000 hosts. A "host" is defined as a computer or workstation with direct Internet Protocol (IP) connectivity. This could be a mainframe computer, or a single user workstation. The IP network began in August of 1981 with some 213 hosts.

TCP/IP ON THE IBM PC - AN INTRODUCTION

Bernard Aboba aboba@netcom.com

Why do I care?

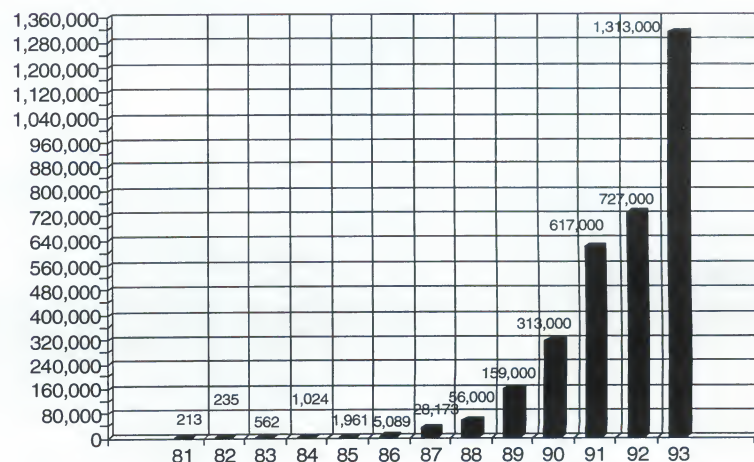
The Internet is a pretty hot topic among BBS operators these days, and since

most BBSes run on PCs, it is natural that interest in TCP/IP on the PC is heating up as well. Most bulletin boards use Unix-to-Unix-Copy-Program (UUCP) dialup connections to pass mail and newsgroups. But the next step toward Internet connectivity requires a connection to the network using the common network protocol of the Internet - Transmission Control Protocol/Internet Protocol (TCP/IP). This is the "standard" networking tool for Unix systems. To gain the advantages of internet connectivity from a PC, you normally will want to use a TCP/IP implementation for DOS or Windows.

As it turns out, TCP/IP software is abundant on the PC, so abundant as to be a bit confusing. Between software for Windows and DOS, virtually every TCP/IP application has been implemented on the PC in one form or other. There are dozens of programs available in dozens of Internet archives.

In order to put together a Frequently Asked Questions (FAQ) list for the readers of comp.protocols.tcp-ip.ibm.com, as well as to develop material for the TCP/IP chapters in the second edition of *Bulletin Boards and Beyond*, I've been keeping track of TCP/IP software for the PC.

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We'll cover some of the basic issues involved in implementing TCP/IP on the PC in this article, but there is no way to even begin to cover all the software that is out there in this limited space. Therefore for further information, please download the full FAQ listing, which is available on the Boardwatch BBS, or the `comp.protocols.tcp-ip.ibm.pc` newsgroup.

Components of a TCP/IP solution

Appropriate hardware

The first thing you will need to run TCP/IP on your PC will be hardware to connect you to the network, such as an:

- Ethernet card
- Token Ring card
- AppleTalk card
- Serial Port

Any other network card with a packet driver or NDIS or ODI driver, (such as Arcnet), will also work.

If you are using Ethernet, remember that even connecting two machines requires use of tees and terminators, and that if you break the continuity on the network, you not only disconnect the machine you are working on, but all the other machines as well.

Hardware drivers

Network cards typically come with one or more of the following drivers:

- Network Driver Interface Standard (NDIS) [MS Lan Manager]
- ODI [Novell]
- Packet drivers [TCP/IP]

Most of the popular software such as FTP Software's PC/TCP, KA9Q, and SLIPDISK require packet drivers. If your network card did not come with a packet driver, you can try one of the drivers from the Crynwr collection (formerly called the Clarkson Drivers). These drivers are available for downloading over the Internet.

However other packages such as NetManage's Chameleon, require NDIS drivers. This can be something of a

problem if you want to run software requiring both NDIS drivers and packet drivers at the same time.

A shim is software that runs on top of one set of drivers to emulate another set. This is useful if you are looking to simultaneously support two different programs, each requiring a different driver interface. For example, if you are running software requiring an NDIS driver (such as Chameleon NFS) alongside software requiring a packet driver interface (such as KA9Q, Gopher, Popmail, NCSA Telnet, etc.) you will need a Packet Driver over NDIS shim.

If your card supports netbios, and you need to run packet driver software, you can run a packet-driver-over-netbios shim.

TCP/IP Protocol Stack

The TCP/IP protocol stack runs on top of the driver software, and uses it to access your hardware. If you are running a TCP/IP protocol stack that requires drivers that aren't available for your hardware, you're in trouble. Check into this before purchasing!

Also be aware that if you are running applications using multiple TCP/IP stacks the stacks are likely to conflict. Therefore you will need to load and unload protocol stacks in order to switch between the two applications.

Winsock

If your application requires it, you may also need a copy of Winsock. Winsock is a Berkeley sockets interface which was created as a Windows DLL. For a given version of Windows, Winsock provides an Application Binary Interface (ABI) that will work both under Windows and Windows NT. Each TCP/IP implementation requires its own version of Winsock.

Applications

Although many of us running TCP/IP software under DOS seem to spend our time looking for working combinations of applications, Winsocks, TCP/IP protocol stacks, shims, drivers, and hard-

ware, ultimately your goal is to eventually run an application successfully. Lots of us are doing this, so don't despair! There are now dozens of publicly distributable TCP/IP applications running under DOS. The situation is not as good under Windows, although things are changing quickly.

Connecting with TCP/IP over a modem

To connect your PC to the Internet using a modem, you will need to use either Serial Line Internet Protocol (SLIP) or Point-to-Point Protocol (PPP). In my experience, both protocols work well, although PPP is easier to administer from the host point of view. Since SLIP is older than PPP, it is currently more widely implemented, although PPP is catching up quickly. SLIP accounts are available from providers such as Netcom (all Bay Area POPs, \$2/hour), Holonet (\$2/hr off-peak), Colorado SuperNet (\$2/hr), MSEN, RISCNet, and others. Some of these providers also offer PPP.

What is SLIP and PPP?

SLIP is a "non-standard" which utilizes very simple framing in order to transport TCP/IP over serial lines and modems. It wasn't designed to be The Solution to this problem, merely a convenient method for doing things until "something better" came along. The "something better" turned out to be PPP.

What is CSLIP? Well, without CSLIP, every character you type in a telnet session will be sent along with 40 bytes of TCP and IP headers. Since these headers don't change often (being composed of things like the source and destination addresses), it is not necessary to transit the information with every packet. CSLIP allows compression of these 40 bytes down to 5 bytes. This markedly increases the responsiveness of interactive sessions.

PPP is an Internet standard that addresses things like negotiation of session parameters, framing, multiple protocols, and data compression (as well as header compression). It is preferred to CSLIP and SLIP where it is available.

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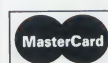
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HoloUUCP also links your BBS to USENET News. USENET News is used by people all over the world to discuss over 4,000 topics. Topics range from arts & sciences to recreation & politics and more. HoloNet can help you expand your BBS membership by giving your users access to the news conferences they want. Over 40MB of new articles are available daily.

HoloDNS is an option you can have with HoloUUCP. HoloDNS provides a custom Internet address for your BBS. For example, your members would have an address like "first.last@your-BBS.com". The one time setup fee for HoloDNS is \$25.00.

HoloUUCP service is quick and easy to set up. To take advantage of HoloUUCP you'll need a UUCP gateway. The one time setup fee for a HoloUUCP account is \$50.00 and usage is billed at regular HoloNet rates, which are as low as \$6.00 per month.

For more information on HoloUUCP, please call us at 510-704-0160.



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For SLIP, I recommend the SLIPDISK distribution since this supports a suite of applications. However, this does not support Van Jacobsen header compression, also known as Compressed SLIP or CSLIP.

SLIP/PPP Software

KA9Q is a very complete TCP/IP implementation that supports SLIP/CSLIP/PPP. Unfortunately it can not be used as a TCP/IP protocol stack to run other applications.

There is a special version of NCSA Telnet for PPP, available via ftp

merit.edu, cd /pub/ppp.

IBM is reportedly shipping to developers an OS/2 CD-ROM with beta versions of their TCP/IP package, for a very good price. The CD includes their TCP/IP stack, X-Windows implementation, and TCP/IP developer's kit.

Setting up SLIP or PPP

Before setting up your SLIP or PPP connection, you should have the following information:

The domain name and TCP/IP address of your host.

Whether your TCP/IP address will be assigned statically, dynamically, or from the server.

The domain name and TCP/IP address of your machine (if you are not configuring the address dynamically or from the server).

The domain name and TCP/IP address of the primary and secondary Domain Name Server.

The subnet mask.

The domain name and TCP/IP address of a NetNews Transfer Protocol (NNTP) server.

Whether your host supports Post Office Protocol (POP), and if so, what version. Whether the host supports compressed or uncompressed SLIP, or PPP.

Do not attempt to connect to your host before you have this information, since it will just waste your time and money, and may cause problems for the network. In particular, do not attempt to initiate a connection using a made up TCP/IP address, since your made-up address may conflict with an existing address. This is probably the quickest way to get people very angry at you.

Static addressing means that your TCP/IP address will always be the same. This makes it easy to configure your setup files. Dynamic addressing means that the host will send you a message containing your TCP/IP address when you log on. This can be problematic if your software doesn't support grabbing the addressing and inserting it into the setup files. If not, then you have to edit your setup files every time you log on. Yuck! Chameleon NFS includes a version of SLIP which can handle dynamic addressing.

If your software supports Bootstrap Protocol (BOOTP), then you can also determine your address by retrieving it from the BOOTP server.

Configuring SLIPDISK

SLIPDIAL is part of the SLIPDISK package for the PC, available via ftp boombox.micro.umn.edu. It supports uncompressed SLIP at speeds of up to 9600 bps, and is compatible with versions of telnet, gopher, popmail, and ftp included in the package. To set up SLIPDIAL, you will need to:

Install the X00.SYS driver in your CONFIG.SYS file. X00.SYS is a commonly used driver for FidoNet software such as BinkleyTerm and OPUS, so if you don't have it, you can obtain it from a nearby FidoNet system, or look for it via Archie. The following CONFIG.SYS entry will set up X00.SYS for two ports, both running at 9600 bps, with transmit and receive buffers of 2K:

```
device=X00.SYS e 2 b,1,9600 t=2048 r=2048
```

Have your host set up for uncompressed SLIP. SLIPDIAL does not support compression, a significant drawback, in my opinion.

Write a login script stored in file DEFAULT.SLP. An example login script for Netcom is given the FAQ for comp.protocols.tcp-ip.ibmpc. This script must specify the same port that the X00.SYS driver was installed on. It assumes that the login banner netcom login: comes up upon connection.

KA9Q

KA9Q is a DOS-based router that can handle LocalTalk, X.25, Ethernet, and up to 4 serial lines all at the same time. It's an amazing piece of software, and the most amazing thing about it is that it is free for non-commercial use (contact Phil Karn for info on commercial use).

I have tried the latest version of KA9Q (January 1993), but found that it locked up, so I am now back to using v2.1.

KA9Q is usually run from a startup script, such as **STARTNOS.BAT**:

```
\nos\drivers\8003pkdr
\nos\net -d \nos
```

Here you first load the packet drivers for your Ethernet card, then run KA9Q (known as **NET.EXE**). The KA9Q package then reads commands from a configuration file, called **AUTOEXEC.NOS**.

Configuring KA9Q with CSLIP and as a router

The comp.protocols.tcp-ip.ibmpc FAQ contains configuration files for KA9Q used as a standalone CSLIP site, as well as a router with an Ethernet and CSLIP interface.

Chameleon NFS

Chameleon NFS is a Windows-based TCP/IP package implemented as a DLL. In addition to the standard FTP, Telnet, Finger, SLIP, Mail, etc. it does a number of advanced things, including routing of mail, multiple interfaces, BOOTP client, BIND/DNS, SNMP, and static IP routing. It requires cards with NDIS drivers (Lan Manager).

In order to help with debugging, Chameleon offers ping, as well as the NEWT

program which gives offers information on the status of ARP tables, interfaces, routing tables, sockets, and gateways/DNS, as well as providing statistics on IP, ICMP, UDP, and TCP. About the only thing that is missing is traceroute.

To get your network card to be recognized, you will have to invoke the **NETBIND.EXE** application early in your **AUTOEXEC.BAT** file. You will also need to edit the **PROTMAN.INI** file to load an NDIS driver for your hardware. I got lost here, but NetManage's tech support guided me through it. It is possible to run Chameleon alongside packet-driver using software such as KA9Q, or FTP's PC/TCP. However, you will have to watch off for conflicting TCP/IP stacks. Chameleon's stack runs as a DLL, so it is unloaded when you leave Windows; however, if you also load another stack as a TSR, you will have to unload it before running Chameleon.

In order to set up SLIP under Chameleon, you need to create a scripting file to call out. The scripting language is in the familiar expect-send-expect format. Chameleon is capable of handling static, dynamic, and server addressing. Below, the **DEFAULT** script uses dynamic addressing (-i parameter) and the **SLIP0** script uses static addressing. The \$u variable stands for the user name, and \$p is for password; both are input in a dialog box.

```
[DEFAULT] SCRIPT=ogin: $u$r word: $p$r -n
$6$c$r -i TYPE=SLIP
```

```
[SLIP0] SCRIPT=ogin: $u$r word: $p$r
TYPE=SLIP
```

FOR FURTHER INFORMATION

To get more information on TCP/IP software for the PC, please consult the FAQ posting for **comp.protocols.tcp-ip.ibmpc**. This is available on the Boardwatch BBS, or in the newsgroup.

[Bernard Aboba is author of "Bulletin Boards and Beyond", a second edition of which will be published this summer by Addison-Wesley. Internet: **aboba@world.std.com**; FidoNet: 1:161/445; MailCom, 5337 College Ave., Suite 326, Oakland, CA 94618; Fax: (510)540-1057 - Editor]

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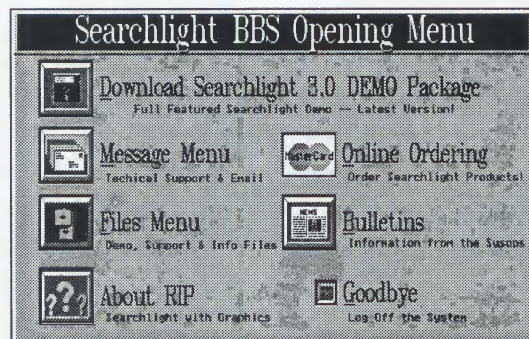
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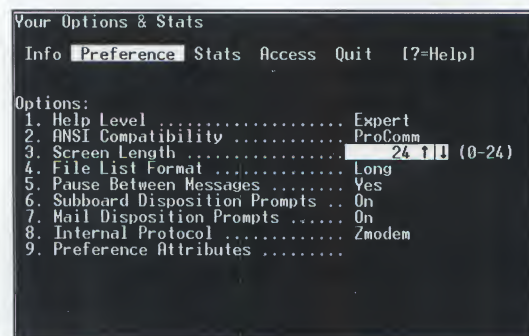
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LEGALLY ONLINE

E-MAIL FROM HELL, POSTMARKED PHOENIX

by Lance Rose

Most people in this country have never visited a BBS. Their first real brush with BBS', their crucial first impression, will often be the introduction they get in their favorite TV news show. And what do they get? BBS' presented as dens of sin, lurking places of pedophiles, drug dealers, computer vandals, and murderers. This approach is entirely retrograde. It discourages people from trying the online experience, unless they're looking to get mixed up in some twisted adventure. It derails the entire project of educating the public, especially law enforcement, that BBS' are far more than just a new way to make trouble. Yet as far as most newspapers and TV stations are concerned, the "BBS threat" is the real news about BBS', since it sells the most ads.

The parade of BBS horrors up to now has consisted mostly of sex-related stories: obscenity, child pornography, pedophilia, the odd snuff movie. That's not rich enough fare for the papers of Phoenix, AZ, though. They found something far better: satanism. A sordid affair linking a murder and an abduction with a satanic BBS network has given the Phoenix newspapers and TV stations, and consequently the people of Phoenix, a new, more lively view of BBS' as the brimstone-scented playthings of Lucifer himself.

According to those same Phoenix newspapers, it all began innocently enough. Billy Walker was an introverted 16 year old high school dropout with little ambition and a love of heavy metal music. His concerned mother bought him a computer last August, thinking he might find something fascinating to do with it. Well he sure did, coming into contact with a supposed 30 year old Satanist named Earl "Dave" Johnson within a couple of months. Dave showed Billy the ways of BBS' and the ways of Satan. Soon Billy was running his own BBS called "South of Heaven", and hanging

out in BBS networks under the handles "Master Lucifer" and "Satan". He fell in most deeply with Dave and a teenager named Daniel Shipley.

Things took a bad turn. Daniel's mother was found murdered in the desert on the outskirts of Phoenix, and the same day Daniel made an unsuccessful attempt to withdraw \$60,000 from her bank account. Immediately afterwards, all three of the networked Satanist disappeared. There is disagreement over whether Billy was abducted by the other two, or freely went into hiding with them. Billy's distraught mother could not believe what her gift of the computer had led to, "I thought a computer would give him meaning in life, not turn him into a kid who would get mixed up in devil worshipers and murder."

After Billy disappeared, his mother went through his computer files. She apparently uncovered a number of messages from others in the satanic crowd Billy was running with. She said, "We had talked, and I told him he needs to follow God, not Satan, but he didn't listen. His data base was full of hundreds of calls from others in this satanic network." She turned Billy's computer records over to the police, who are studying the files for clues to Billy's whereabouts.

According to locals in the Phoenix BBS scene, the police did not stop at studying computer records. Sysops in Phoenix are convinced that the state police have been using Billy's own comm program scripts to log on to local BBS' with "evil sounding names" and snoop around. They're also not so sure it's all about the investigation of Ms. Shipley's murder and Billy's disappearance, either. Some are convinced that the police are saving the information they're obtaining from the various BBS' now, and will use it later to bust sysops of whom they're not too fond.

The sysop of one Phoenix BBS called "Symphony of Destruction" received a lot of attention. First, he got a telephone call from the police, asking questions about the Shipley murder and supposed abduction of Billy (hint - if you don't want to be the first guy the police call,



don't call your BBS "Symphony of Destruction").

Then, he found out that the login screen of his BBS was shown to the public in a local TV news segment. This was enough to make him shut down the BBS. His users included a couple of hackers and possible software pirates. With the local BBS/Satanism hysteria now in full flower, the risk that he might become the focal point of some of that hysteria, whether or not deserved, was far too great.

Is "hysteria" the proper word? Judge for yourself. If you never before saw your computer as the mechanized version of Rosemary's Baby, then consider this line from one of the newspaper stories: "Walker says her son became involved in Satanism through an electronic network made accessible by the computer in his bedroom." Certain of the more colorful aspects of computer networks were explored in the newscasts and linked to the satanism angle, such as Usenet's alt.sex.newsgroups. There were stories about BBS addiction, and advice to worried parents on how to tell if their kids were going down the wrong path with their computers.

One photograph that made the rounds showed a woman burning a candle next to her computer to chase away the evil spirits within.

Far be it from the police to miss out on the lunacy inspired by the press. The

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standard questions (it's sad to note they're so standard) must be raised about what the heck they're doing with Billy's computer files. Did the police obtain a proper warrant to review the messages from Billy's acquaintances on the computer networks? If Billy was running a BBS, there were almost surely many scores or hundreds of messages stored on the system, making the Electronic Communications Privacy Act applicable, with its special safeguards against police viewing private messages. Just as disturbing is the possibility that they used Billy's own login scripts to gain access to BBS' he had gone to before. This would not be a mere review of Billy's property, but a search of those other BBS'. We can only hope that the police, if they indeed did use those scripts, obtained proper warrants authorizing every such search.

Perhaps more pieces of the story of Billy's whereabouts and his involvement in the murder will be turned up by the time this story is published. However this drama is resolved, the signifi-

cance of the BBS/Satanism linkage will remain. It perfectly illustrates the ongoing vilification of BBS' by mainstream media, through their association of BBS' with the perfect villain - Satan himself.

FEDS WANT TO OUTLAW HATE CRIME BBS'

The anti-BBS legal drumbeat is unceasing, and the media are not the only little drummer boys. Now the feds want in on the fun.

The National Telecommunications and Information Administration, an Executive Branch agency formed in 1992 to develop presidential policy positions and recommend them to Congress and the FCC, is looking into "the role of telecommunications in crimes of hate and violent acts against ethnic, religious and racial minorities."

That looks pretty ominous already. In a recent request for comments, the agency made it clear that BBS' are one of their

main targets of study.

Various statements scattered through the NTIA's announcement ominously imply that the NTIA is considering BBS regulation. One is, "Messages claiming the Holocaust was a hoax, and other anti-Semitic messages, created a controversy in 1991 over the use of computer bulletin boards." That's not exactly true. There were such messages on the Prodigy system, and they did create controversy. But the controversy was over Prodigy's handling of the matter, not over the legality of using computer bulletin boards for such messages. Bulletin boards can be used for all kinds of speech under the 1st Amendment, including exceptionally ugly Holocaust-was-a-hoax speech. If the private sysop, such as Prodigy's managers, wants to delete the message, or leave it on the system, that's up to him. The government had nothing to do with the whole affair, and it still doesn't.

Here's a passage that knocked me out of my seat: "[B]roadcasters are subject to

certain "public interest" obligations . . . Most point-to-point voice and data service is provided by common carriers subject to the authority of state and federal regulatory agencies . . . Computer bulletin boards are private, unregulated communications systems. To what degree do such legal and regulatory distinctions affect the commission and prevention of hate crimes using telecommunications?" In other words, they're saying if it turns out BBS' are more involved in so-called "hate crimes" than, for instance, television or radio broadcasters, then maybe it's time to regulate BBS'.

Another passage shows the NTIA is talking directly about the possibility of government censorship of BBS': "New Developments in telecommunications technologies may offer a means of preventing . . . hate crimes . . . [W]ith respect to computer bulletin boards, computer software can allow computer bulletin board operators to eliminate unwanted

messages from their systems." It's unclear whether they're talking about a sysop manually removing messages deemed "unwanted" by the government, or setting up some kind of automatic filter program to remove messages with bad words or themes. Either way, it stinks. Finally, the NTIA bluntly suggests that the sysop should be monitoring all messages for hate crime speech, and even barging into private mail to make sure such speech is not taken private by users.

This is a stunning piece of work. It shows our government has not grown any more enlightened since the last Presidential election. The NTIA's whole thrust on hate crimes is to regulate them out of existence, 1st Amendment be damned. And they have BBS firmly fixed in their sights as a major initial target of investigation.

Well, at least the NTIA faces some pretty hefty legal hurdles if it actually pro-

poses any regulation of so-called hate speech. Laws regulating such things as the "hate crime" intimidation of people or groups by others might make sense, but they lose steam fast when they cross over to regulate expressions of opinion in a public forum. All regulations directed at controlling speech must undergo the strictest scrutiny to survive a 1st Amendment challenge, and any workable alternatives with less impact on speech must be pursued. If any regulation singles out speech and leaves other aspects of hate crimes less regulated or unregulated, then again it must be tossed out.

Hate crimes are nothing to sneeze at, and it seems that hate groups such as the neo-Nazis and Ku Klux Klan are healthier than ever. Reasonable regulations to keep these groups from hurting others are welcome. But speech, hurtful as it might be, must be spared from all regulation. Public discussion of hate speech is probably some of the most

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important public discussion we can have, and the 1st Amendment exists to make sure we can keep on discussing it. And if BBS' end up being one of the main places where hate speech is made and discussed, then that's why we have the 1st Amendment: to protect the right to make and discuss hate speech on BBS'.

[Lance Rose is an attorney practicing high-tech, computer and intellectual property law in Montclair New Jersey, and is available on the Internet at elrose@well.sf.ca.us and on CompuServe at 72230,2044. He works with shareware publishers, software authors, system operators, technology buyers, interactive media developers, on-line database services and others in the high technology area. He is also author of the book SYSLAW, a legal guide for bulletin board system operators, available from PC Information Group (800)321-8285. - Editor]

MACINTOSH BBS NEWS

by Bill Gram-Reefer

The best way to review software, I think, is to have an expert do it. Who better to review a Mac BBS product than a sysop who uses it everyday, a person who knows the strengths and weaknesses of the package and can talk about it sanely without sounding like some hyped-out techno dweeb that couldn't write their way past a C prompt. Thanks to Scott Mandell, sysop of the Autobahn BBS, of Ithaca, NY, for his hard work in preparing these thoughtful comments.

FIRSTCLASS: THE REVIEW

by Scott Mandell

Since about 1986, I've run bulletin board systems (BBS) on the Macintosh platform with software packages ranging from WWIV, to Hermes, to NovaLink. *Last September I* discovered SoftArc, Inc.'s FirstClass, and immediately wanted to be a FirstClass Administrator.



FirstClass, a telecommunications server for networks, modems, or both, provides an easy-to-use interface for both users and the System Administrator (the name given a Sysop in FirstClass-land). FirstClass offers a graphical user interface (GUI) for callers using special Client software which makes using a BBS similar to using the Macintosh Finder.

Setting up the FirstClass server is extremely easy, though it does take some getting used to. Although it may seem as simple to use as the Finder, some commands and functions in FirstClass behave differently. I recommend that anyone setting up a FirstClass Server read the manual first — it will save you a lot of time, and perhaps trouble, down the road.

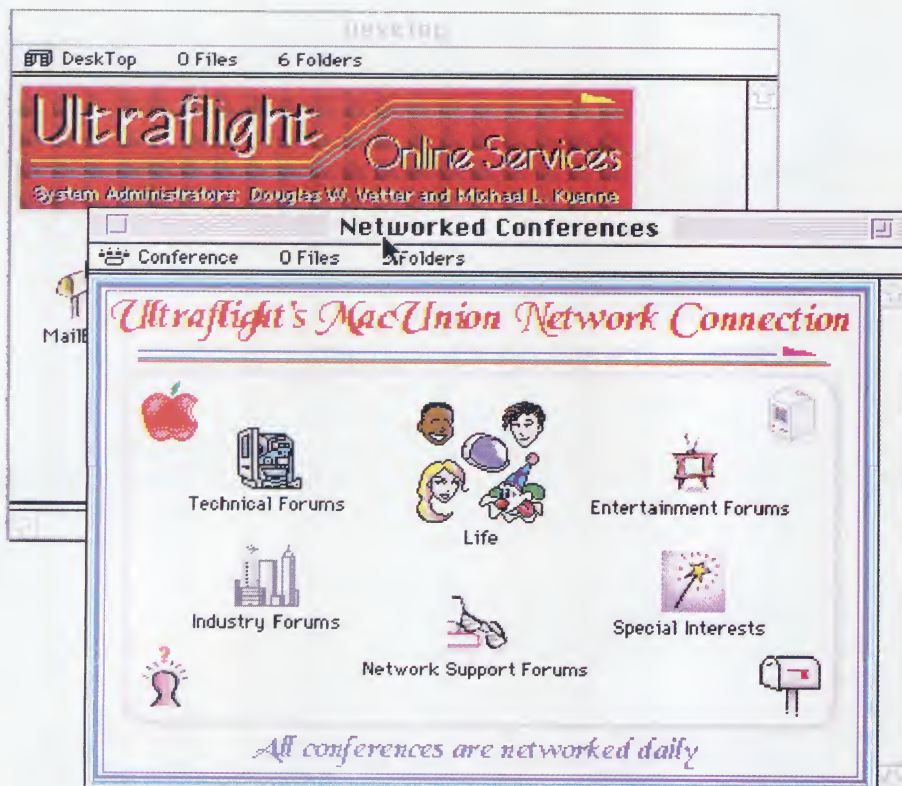
SoftArc recommends that you run a dedicated CPU as your server, but for most hobbyist Administrators, this is not realistic. If you're going to run your server from a single CPU, you'll need to be able to logon using LocalTalk. If you plan to have a printer connected to your server CPU's printer port, be sure it is AppleTalk-capable; otherwise you'll have to deactivate AppleTalk every time you want to print something. Currently, a single FirstClass server can only support incoming lines on one CPU. According to Maury Markowitz of SoftArc, a summer release "will allow multiple servers to share information locally, making the number of incoming lines almost limitless." Despite this current

limitation in CPUs, FirstClass can share files on multiple volumes, making storage possibilities endless.

After setting up the FirstClass server, the Administrator may want to customize a "Settings File." This lets users take advantage of custom icons, sounds, and background pictures unique to your system. Settings files are easy to create and edit, though a working knowledge of ResEdit is essential. When creating the settings file, you can use your own icons, sounds, and pictures, or use some of the many available in the public domain. Icons and pictures in the settings file can contain as many as 256 colors.

In addition to Macintosh callers, a FirstClass system can accommodate callers from most any computer platform. Anyone with a VT100 or TTY compatible terminal program can log in to FirstClass via its command line user interface (CLUI). The CLUI leaves a lot to be desired as far as a BBS interface, but it will allow those not fortunate enough to own a Macintosh to access a FirstClass system. Users of Windows should have a their own version of FirstClass Client by this summer, and a DOS version is also in the works.

FirstClass is fully networkable, and messages can be sent and received in several ways. A proprietary gateway system makes message and mail transfer between two or more FirstClass systems extremely easy. Currently, private e-mail can only be sent between two directly-connected systems, however by the summer, multi-hop e-mail will be available. When this method of e-mail distribution is available, any user on a network of FirstClass systems will be able to send private e-mail to any other user on that network. One such FirstClass-based network is the OneNet Member Network, located in Los Altos, California (415-948-5086 voice). OneNet is a network of about 100 FirstClass systems around the world. In addition to FirstClass gateways, FidoNet is accessible using Michael Connick's Tabby, which includes a free FirstClass/Tabby interface. SoftArc and Information Electronics (607-868-3331 voice) offer many gateway options for



FirstClass systems including Internet, Quickmail, MS-Mail, CompuServe, AppleLink, MHS, and even a Fax and Pager link.

The messaging and private e-mail system in FirstClass is very well thought out. Messages can be posted anywhere in the system as long as the "To:" field is addressed to a proper user or conference. FirstClass even helps the user if they enter a bad name or conference by providing a list of possible recipients. When a message is posted, a copy of that message is left in

the sender's mailbox. In addition to allowing users to refer to old messages they posted, it also lets them get a "history" of that message; a complete run-down of who's read, replied to, or in any way interacted with the message. It is also possible to tell whether or not the intended recipient of e-mail has received it.

Offline mail reading can be accomplished using a shareware program called BulkRate. Although BulkRate does the

job, it does so clumsily, and SoftArc plans an off-line mail-reader to be built into the Client in a future release.

One of FirstClass' strong-points is its file transfer system. Using the Client software, callers can upload and download simultaneously, as well as read and post messages while transferring files. Transfers, which are accomplished using a proprietary protocol, are not quite as fast as a straight ZMODEM transfer (which is one of the several transfer protocols offered in the CLUI). This speed decrease is due to the multi-tasking capabilities of FirstClass, a tradeoff that allows you to get more done during each call, so that in the long run you may actually spend less time online.

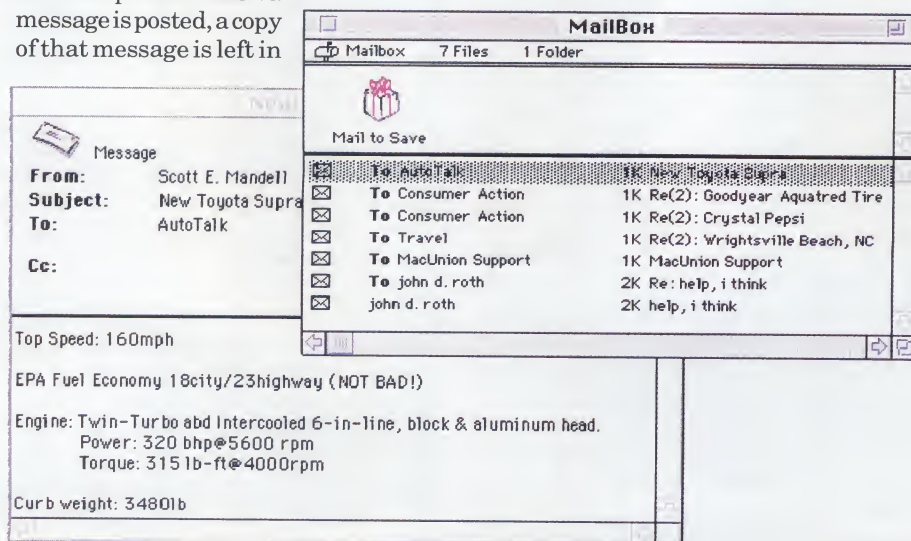
FirstClass offers special Chat 'rooms' where two or more users can privately chat. On a single-node system, this can be used for the Administrator to chat with a user. On multi-node systems, a public chat room can be set up so that anyone can join a single conference, or individual users can open their own chat room and invite whoever they want. The chat window is easy to use, although with a large number of participants, the window becomes too small very quickly.

Things I'd Like to See:

As Administrator of a single CPU system, I'm forced to logon to my BBS using LocalTalk. For general use and maintenance, this is fine, but for file maintenance, it's very slow. At about 4K/second, uploading and downloading files as the administrator is very tedious, especially since an upload could simply be locally copied at about 100 times the speed.

FirstClass' multi-tasking environment is beneficial in most cases, however I would like to have a "fast-transfer" option. Such an option would maximize transfer throughput and disable multi-tasking for those times when I simply need to upload or download a file, usually on a long-distance phone bill!

Finally, a feature I'd like to see added to FirstClass, and other BBS systems for



that matter, is the ability for a single-node system to receive incoming faxes. Many Sysops run their BBS using fax-modems because it is such an inexpensive option, and it would be nice if BBS software would be able to recognize an incoming fax call and route it to the Administrator's mailbox. SoftArc's current Fax gateway requires a CPU and modem dedicated to receive incoming faxes.

To run a FirstClass system, you'll need at least a Mac Plus with 500K of free RAM and System 6.03. A faster CPU is preferable (especially if you are not going to use a dedicated Server CPU), a fast hard drive is essential for optimum performance, and FirstClass is System 7.1 compatible.

Prices for the software start at **\$395** (there is special pricing for public BBS operators, call SoftArc for details), and upgrades are also available. Support is excellent: if you can't get an answer from fellow FirstClass Administrators (who always seem more than willing to help), you can call the support BBS, SoftArc Online, at **416/609-2250**, or call SoftArc voice at **416/299-4723**.

WHAT'S UP, DOC?

"So waddya think, Doc...am I crazy?" The shrink twisted and turned toward the open window while sitting in the plush leather chair. Crossing her legs she looked back to me, frowned, and chewed on a pencil. Then, with a twinkle in her eye, she pointed a mouse at my nose. "Tell me more about this disturbing dream of yours," she demanded.

"Well...like I said. There I was. I had just bought a brand new Jeep Centras 900; jet black; super stereo system, too, the one with the CD player; cost me a fortune, sheesh! I get behind the wheel, but it won't start. I get out and open the hood and find a box. I look at the box, Doc, and damned if it doesn't say in big red letters, 'WARNING: 68040-liter, turbo-charged engine; install with ResEdit 3.9.'

"What's this, I ask myself indignantly? Geez, I spent all of that money only to find out that the engine wasn't installed,

and it's sitting in pieces in my trunk...how am I going to get anywhere? And the only way to get it installed is to use

something called ResEdit 3.9, which I have to learn how to use it

to make what I thought was an off-the-showroom-floor product work the way I want it to?"

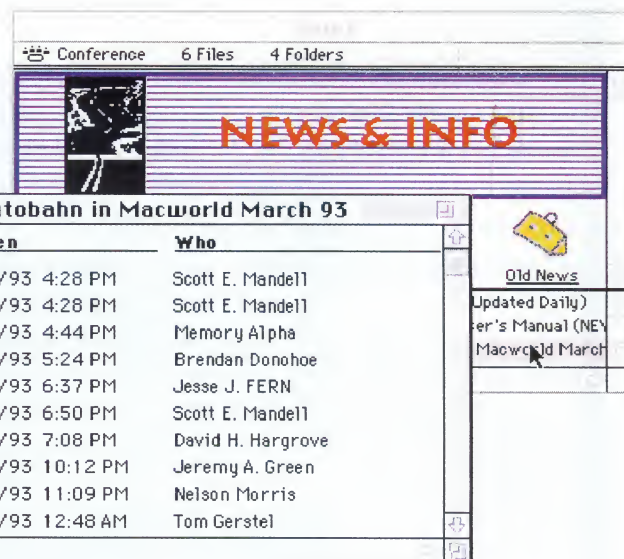
"Then, a salesman, who looks a little like Guy Kawasaki, appears over my shoulder, and says: 'Got a problem there, Bill? Hmmm. You know you'll find the answer online...call a BBS that provides local Jeep Centras support; that'll fix you up. Why, they have all of the files you'll need to get going in no time.'

"But don't I need to have the motor installed before I can call a BBS?"

"You're right about that, Bill,' nods the salesman. That means you'll need to join a user group first. Come on down to Rod's Pizza with me, the Devil's Valley Jeep/Centras Users' Group is meeting there tonight. They run a local BBS that you'll be able to logon to later.'

"So, Doc, after what seemed like a week of politically-correct techno-babble, gallons of Jolt Cola, and some gawd-awful pepperoni pizza, I find myself sitting in my Jeep, crying, holding a dozen diskettes. The salesman is sitting next to me; he smiles knowingly, and here's what he said:

"Bill, I see it all the time. People buy their fancy off-road vehicles thinking they'll be motoring down Al Gore's data highway in no time, flat. Why they even think they'll be able to get from point A to point B, or actually get some real work done. But you know what, Bill? It's all a big lie. See it works like this: Centras



were never meant to go anywhere, off road, or on road. User groups and BBSs, why, they're like Grand Auto parts stores; they sure do have lots of chrome to make your 4WD look hot, but that's all. They're only there to help you detail your Jeep, not to help you get anywhere, except maybe to a networked Star Trek or Grateful Dead Usenet conference. That's what user groups and BBSs are for, don't you know?"

"You mean driving for driving's sake?"

"That's right, Bill...you got it!"

"And BBSing?"

"Roger, wilco and out. It helps the economy, and keeps the kids off the streets, too. Just like Rickard claims! Why there's a whole industry that creates jobs for people who support people who support people who just putz with their Jeeps, from the mightiest corporate IS mogul to the fattest and ugliest Fidonet sysop."

After a long silence, the shrink shuddered and went pale. Then, after throwing her head back, she looked back at me grinning wickedly and snickered in a high-pitched voice: "you think that's crazy, just wait until you catch wind of the senseless 'content' industry that's going to spring up to 'support' Apple's Newton and all of its sibling PDAs. You'll really be shaking your head in disbelief, then."

And with a "poof," my shrink turned into a naked miniature of Andy Hertzfield with tiny fluttering wings protruding from its back, the cherub

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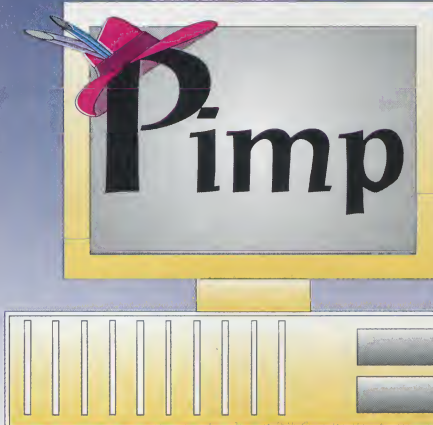
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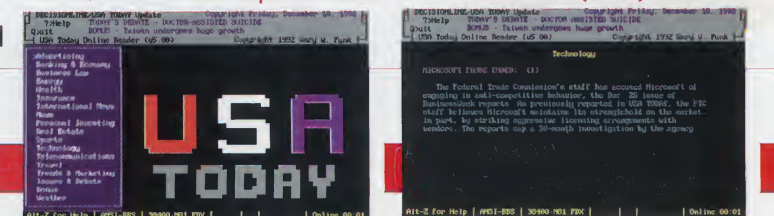
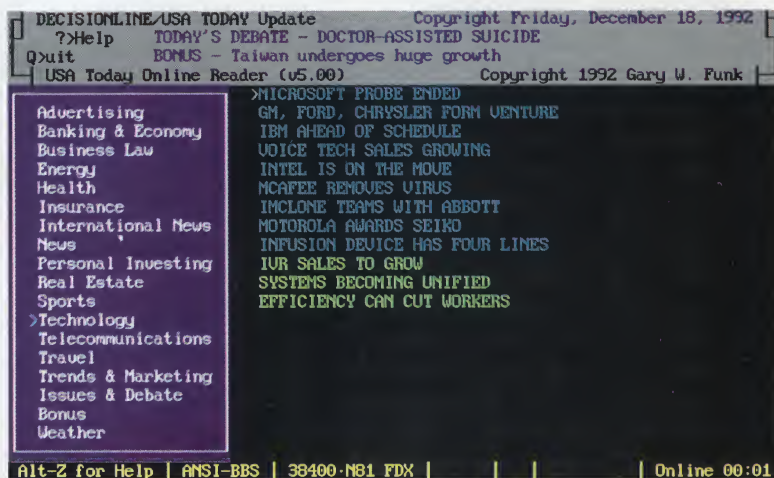
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laughing devilishly as it disappeared out the window.

MAC BBS OF THE MONTH

Want to earn your wings? Then call the Ultraflight BBS, it deserves your help, if you dare. Based in Somerset, NJ, Ultraflight's chief claim to fame is its focus on flying...of all sorts. Its Hangar One conference is a potentially networkable special interest haven for anyone even mildly amused by or interested in aviation of any kind. There you'll find associated shop-talk concerning F.A.A. regulations, windshear capacities of the new line of Cessnas, aileron fibrillation, and, most likely (considering the wide selection of other-worldly conferences found on this board), a place to share tall tales of harrowing escapes from UFOs while flying your Piper Cub home from the Super Bowl.

A member of the MacUnion and OneNet FirstClass-based networks, Ultraflight offers an interesting online look with many customized icons and sounds, and news alerts that followed the Blizzard of '93 (remember?); which shows much care and interest from administrators Douglas Vetter and Michael Kuenne. Serving the New Jersey metro area, the board supports Macintosh hardware, software, programming, and the Skyline Systems MUG of Holmdel, NJ.

As of this writing, Doug and Michael are struggling along with an LC 6/40 with an external Maxtor 340-Mb hard drive, and V.32bis Supra faxmodem. But because of the LC's serial port, the command line interface has been disabled, so you need FirstClass Client 2.0 or higher to logon. The administrators plan to upgrade soon to more robust equipment. Hopefully, by the time you read this, Ultraflight will be zipping along on a Centris 650 or Quadra 800, with a 195-ms access time Toshiba XM-3401 CD-ROM drive. Hey! Go big or stay home.

A young board that went online mid-December 1992, it already has many regular callers and some interesting visitors, to say the least. File sections

are well stocked with communications, MIDI, and multimedia files, including a good, up-to-date selection of Internet applications and utilities. The telecom icon, though, looks more like a 50-megaton nuke on the loose more than radio waves emanating from a signal tower.

Which fits in with the overall, eery feeling I got on my recent visits. There seems to be more there than meets the eye. Okay, I'll say it. The place felt empty, almost haunted, but in a benign sort of way; for the scariest item I found was only an argument of debaters busily



imitating, by bringing up their own putrid bile for all to see, the banal political radio personality, Limbaugh, in the RUSH conference.

Ultraflight, indeed! And aptly named at that. We're talking lots more than the usual Star Trek conference fare. In addition to Aviation and Hangar One, there are also lively discussions concerning UFOs, Paranormal phenomena, Weird Science, time machine patents, and true-life Communion stories. It's a wonder there isn't a chop shop or cold fusion SIG. Yet?

Empty...like you could hear the echoes as you walked down the marble-tiled hall while a cool breeze plays upon the back of your neck. Brrr. But, I bet by summer, the place will really be hopping and it won't seem spooky at all. So give Ultraflight a ring. Say "hi" to E.T.

for me, too. Ultraflight, P.O. Box 244 Somerset, NJ 08873-1810; (908) 545-5255 bbs; (908) 247-6358 voice.

ATTENTION MAC SYSOPS

If you have a Macintosh-based BBS (even if it isn't haunted by extraterrestrials), let us know who you are and what you think you're doing that makes your board special. To make things easy for everyone, mail a diskette containing your user program with a preset account, time allotment (1-hr for editorial

deadbeats like me should be plenty) and password to the address below so I can log on and take a look around your system. Also include a text-file that describes your board and any interesting places on it you think are special. I'll try to visit as many boards as possible and write about the most interesting ones I can find. MAC BBS, 2069 Highland Drive, Concord, CA 94520.

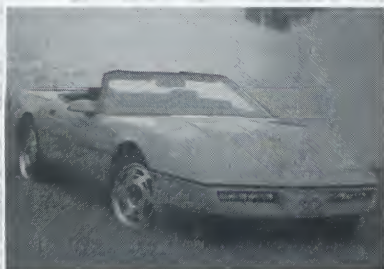
[Scott Mandell is the sysop of the Autobahn BBS (see review in

Boardwatch, 2/93). The Autobahn BBS can be reached by modem at (607) 256-7595 (24 hrs). Scott can also be reached via E-mail at: gggj@cornella.cit.cornell.edu

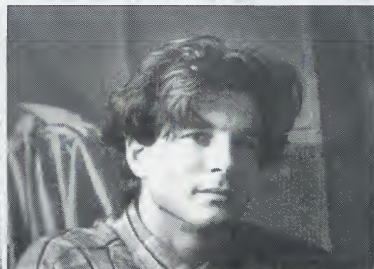
Bill Gram-Reefer, based in Concord, CA, is president of WORLDVIEW, a public relations firm specializing in connectivity and communications. Bill has been writing about Macintosh computers since 1984. E-mail Bill at: wk05156@worldlink.com - Editor]

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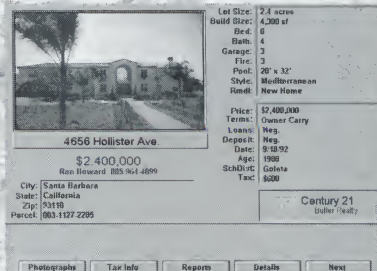
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BBS: 805-964-2833
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Santa Barbara, CA 93111

EAST COAST

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4601 N. Fairfax Dr., #1130
Arlington, VA 22203

DIRECT DIAL

ONLINE RESOURCES FOR THE DEAF

by Kevin McLeod

Back to the Future - with Fulltalk and Futura

Watch carefully, and you may find a TTY lurking in your modem someday.

Proprietary formats and incompatible standards are facts of life for telecommunications consumers. The international Deaf community is currently navigating the treacherous waters of transition to widespread use of ASCII. Amid the large current base of TTYs, many of them electronic models, the ancient baudot standard still thrives.

Dick Brandt of New Jersey has sub-

mitted a draft form proposal dubbed "V.tty" to the CCITT (Consultative Committee on International Telephony and Telegraphy) suggesting that baudot capability be included in all newly manufactured modems.

Baudot got a foothold in the deaf community decades ago when Deaf organizations adapted surplus Teletype Corp. machines. Outfitted with acoustic modems, they were hoarded and kept in good repair for use on the public telephone network. In time, companies like Krown, Phone-TTY and Ultratec emerged and began producing extremely reliable electronic models that apparently refuse to die.

They do not come cheap - prices range from \$200 to \$800, which gives Deaf consumers the equivalent capability that a \$40 voice phone provides to hearing consumers. Before the recent advent of relay services, they were only useful if you could call someone else that also had a TTY. Professional, 24 hour relay services provided by phone service vendors

now interpret calls between hearing and Deaf customers.

Newer TTY models provide limited ASCII compatibility, but many older devices will not talk ASCII at all. Leading Deaf organizations, including Gallaudet University and the National Association of the Deaf, have recognized the value of moving to the ASCII communication standard, so the Deaf community can enjoy the same connectivity to E-mail, BBSs and information services that are growing worldwide.

Toward that end, the V.tty proposal will provide a way for Deaf consumers to attain complete ASCII accessibility and not lose touch with their friends, neighbors and co-workers that have not yet made the change. Because adding baudot capability in the design stages is not costly, knowledgeable sources in the Deaf community predict that even if the V.tty proposal is not formally accepted by CCITT, chipset manufacturers will build it in anyway.

Modems equipped with a V.tty design will be able to re-negotiate carrier - but only in "TTY" mode - to re-establish the connection when carrier is lost. The design also borrows a page from European standards and adds calling tones with menus. These tones poll the other modem during handshaking to establish protocols and assist switching devices, such as those used by 911 emergency services, in identifying the calling device.

The identification provision is especially important to Deaf users. Several incidents in the past few years involving TTY calls to emergency services resulted in slowed and confused responses that may have caused otherwise preventable deaths.

The current generation of hybrid ASCII/ baudot modems, available from Microflip, Ultratec and Phone TTY, can send and receive in ASCII or baudot. but they are only intended for basic communications and are therefore limited to 300 baud for ASCII connections.

Most such devices are similar in size and appearance to standard external modems, but Ultratec features an innovative Compact model that is slightly larger than a paperback novel and not much heavier. Essentially a miniature TTY with 300 baud ASCII, it includes a built-in keyboard and 2-line 80 character LCD screen, providing truly portable ASCII/baudot capability. The rechargeable AA battery pack is rated for 7-10 hours.

In anticipation of widespread ASCII/ baudot access, there are exciting developments appearing in products for dual ASCII/baudot communications. Two rival firms, Microflip and Futura Wave Communications, are expanding the capabilities of their respective communications programs at a furious pace.

Futura Wave Communications' Futura package is crafted to meet the needs of working with two different technologies, but sports a user interface comparable to any mainstream communication program. Written by Deaf programmer Norman Williams, Futura 2.10 works with several ASCII/TTY and

Hayes compatible modems, but TTY calls are only possible with the hybrid ASCII/ TTY modems. Futura offers the usual list of amenities, such as a 500 number dialing directory already stocked with dozens of numbers that can be reviewed and revised while online, auto-redial, online help, Caller ID support, remote message retrieval, a scroll-back buffer, user-selectable "wallpaper" designs, and a screen saver.

Callers placed on hold can invoke a waiting mode that will flash the screen to alert the caller that the hold period is over and text is again coming in. Consumers on a tight budget will appreciate the clever toll-saver scheme that alerts remote retrieval callers when no new messages are waiting. Basic E-mail capability is also built-in.

Relay customers must keep two numbers handy when calling out - the number to dial into the relay service and the number the communication assistant must have to reach the other party. Futura gets around this by adding a voice setup mode that will automatically supply a text string with the name of the party and the number to call to the relay service after the connection is established.

A file folder metaphor is used to save and organize the text of discussions and messages left when Futura is in auto-answer mode. Different folders can be created for multiple users in an office or household where more than one person uses the program, and can also be used to leave notes to each other. Auto-answer supports password protected remote retrieval of messages.

A new release, Futura 2.20, is anticipated in April and includes an original feature: pager support. When Futura is left in Auto-answer mode, it will take the message, then dial a preset pager number and dump a numeric message that notes the number of new messages, the Caller-ID number, whether the call was by TTY or ASCII, the length of the message, and whether the caller is also using Futura. This arrangement makes distributing pager numbers and teaching others how to access the pager unnecessary.

CONTACT & PRICING INFORMATION:

MIC300i/Fulltalk - \$349.00
MIC9600e/Fulltalk - Availability targeted for July '93. Pricing not yet determined.

Microflip Corporate Office
11211 Petworth Lane
Glen Dale, MD 20769
Voice/TTY 301-262-6020
FAX 301-262-4978

Futura 2.10 \$49.95
CM-4 Modem & Futura 2.10 \$349.00
Futura 2.20
Release expected in early April.
Price to be \$59.95 or less.

Futura Sales
202 Lexington Avenue
Hackensack, NJ 07601
Voice (201) 489-7889
TTY (201) 489-7890
BBS (201) 489-3323
FAX (201) 489-7891

Intelemodem \$329.00
Compact \$299.00

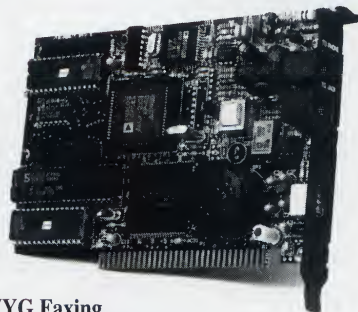
Ultratec
450 Science Drive
Madison, WI 53711
Voice/TTY (608) 238-5400.

All features of Futura will also become accessible as a TSR, taking up just 7k of base RAM, and can be swapped out to disk, extended or expanded memory. Support for ASCII speeds to 2400 baud and Hayes command strings will also be added.

Phone-TTY, in Hackensack, New Jersey, now includes Futura with their CM-4 ASCII/TTY modem.

Microflip also bundles their proprietary modem and comm program together. Dillip Emmanuel, a Deaf engineer and developer of Microflip's Fulltalk program and Mic300i internal modem, has

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CCITT V.22bis (2400 bps)	✓	✓
CCITT Group 3 send/receive fax		✓
CCITT V.42bis / MNP 5	✓	✓
CCITT V.42 / MNP 2, 3 and 4	✓	✓
Internal half-card w/16550 UART	✓	✓
External	✓	✓
Data communications software	Qmodem	
Warranty	5 years	

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been featured in an earlier issue of Boardwatch. Dillip and Microflip will soon introduce a new external modem for the Macintosh family called the MIC9600e.

The original MIC300i with Fulltalk is, like Futura, a veritable Swiss Army knife of features. It too includes a dialing directory with many numbers included, autodialing and call progress reports, E-mail capability, save & send text files, remote retrieval of messages, screen capture, time elapsed indicator, a TSR popup mode, auto-answer mode, and compatibility with domestic and international TTY models.

The new MIC9600e adds 110-9600 baud capability, MNP 1-5, V.42 and V.42bis compression and error correction, and send/receive FAX at 4800-9600 baud. A unique feature (also available in the MIC300i model) is a built-in signaler, which can activate wireless modules connected to other devices such as a lamp. This is typically set up to alert users to incoming calls. An extended and enhanced Hayes AT command set

and Caller ID support is also included.

Optional add-ons include 128k RAM for message storage, a synthesized voice message that alerts emergency services to incoming TTY call - another approach to the emergency services problem - and a voice digitizer for recording and storing voice messages.

Relay services, which translate voice calls to TTY and vice versa, serve a broad spectrum of users. Some relay consumers prefer to use their own voice during relay calls and have the relay communication assistants send them the text of the voice callers' message. This communication method is called "voice over". Alternately, hearing consumers with speech difficulties can choose to "hear through", which allows them to listen to the voice caller and respond through the communication assistant with a TTY.

Both Futura (when coupled with an appropriate modem) and the MIC products are compatible with these services. Both also report call progress tones.

Windows versions of Futura and Fulltalk are under development.

If you would like more in-depth information about standards in TTYs and ASCII products, information is available from:

Technology Assessment Program
Gallaudet University
800 Florida Avenue NE
Room MSSD-200
Washington, DC 20002.

Please enclose a check for \$8 to cover the costs of duplicating and mailing. The packet includes extensive technical information on previous a previous effort to standardize Baudot, summaries of the three meetings held to date, the V.tty proposal, and research reports on ASCII TTY products on the market.

TTY or TDD?
Tale of an Up roar

The Deaf community first gained access to the telephone network via tele-

typewriters, which was quickly abbreviated to TTY in discussions. As electronic versions of the TTY emerged, a broader term that covered both the original TTY and the new version was needed, so the acronym TDD, for Telecommunications Device for the Deaf, was adopted. There was considerable ambivalence toward the term TDD in the Deaf community, as you don't have to be Deaf to use a TDD, which contradicts the label. Many hearing family members, friends and so on also used TDDs to remain in touch, and hard of hearing or late-deafened people would sometimes reject a "Deaf" tool that could provide a real benefit.

As the Federal Communications Commission began working with the Deaf community to implement provisions of the Americans with Disabilities Act, new communication technologies serving Deaf consumers continued to proliferate. The FCC suggested an even more generic term, Text Telephone, to replace TDD. That might have worked out, except that when TT is expressed in American Sign Language, it can easily be mistaken as the sign for toilet!

Soon the topic became a subject of debate throughout the Deaf community, and other proposals sprang forth - TTD, for Text Telephone Device; TTP, another acronym for Text TelePhone. TTP was quickly shot down when it was pointed out that verbal pronunciation of "TTP" might come to resemble (ahem) "titty-pee".

Throughout the uproar, a groundswell of opinion began to build in favor of returning to the original TTY. Although it didn't serve as the catch-all term that some wanted, it was still dearly loved and widely used, a historical favorite that had earned its place in Deaf vernacular.

Last Spring, Telecommunications for the Deaf, Inc., published a survey form in the GA-SK Newsletter asking readers to choose their preferred acronym. The results were overwhelming - Deaf readers across the country voted to return to TTY, and this is the term now used in Deaf publications throughout America.

[Kevin McLeod is a Deaf freelance writer.
- Editor]

THIS MONTH'S LIST: WORCESTER MASSACHUSETTES

Our list this month is a bit smaller than normal, but we think illustrates a key element - all bulletin boards are not necessarily located in major metropolitan areas. Worcester Massachusetts is located nearly enough in the center of the state, and with it's immediate suburbs hosts a population of some 169,759 across some 37.6 square miles.

Jim Metzler relocated to this city from his home in the Washington DC area. A fan of Mike Focke's excellent Washington DC BBS list, he immediately setup his **Miwok Village BBS** at (508)754-6512 using Wildcat! software. He also decided to publish a BBS list as detailed and verified as the one he was accustomed to in Washington. His list currently sports some 66 systems with title, telephone, speed, software, sysop name, location, and detailed notes on what is on each board. The list is verified every other month. He graciously allowed us to publish the list in this issue.

The BBS per population works out to some 2572 residents per BBS, which is a higher percentage of bulletin boards per population than more metropolitan areas - or perhaps demonstrates an ability to more accurately census bulletin boards in a smaller locale. If this density held nationwide, and we suspect it doesn't, it would indicate a national population of some 97,200 public bulletin boards. Clearly Worcester has more bulletin boards per capita than most areas.

The choice in BBS software is likewise varied. Wildcat! leads the charge with 12 systems, while PCBoard is essentially right with them with 11. WWIV is the third most popular choice with 10 systems. No other software had more than three local boards.

DEAF-RELATED BULLETIN BOARDS

Tennessee Deafness Information Network, Inc.

A non-profit organization.

Knoxville, TN

(615) 690-8489

FIDO 1:3615/27

Sysops: Ben & Susan Harold

Carries the American Sign

Language Echo (ASL)

and SilentTalk on a Wildcat system.

Technology Assessment Program (TAP)

Gallaudet University,

Washington, D.C.

(202) 544-3613

Running Searchlight

Telecommunications Exchange f/t Deaf (TEDI)

Great Falls, VA

(703) 242-8117

Sysop: Esther Williams

Running Searchlight

Bitstream Bar & Grill, Texas

(512) 255-0423

FIDO 1:382/71.0

Sysop: Tom Lear

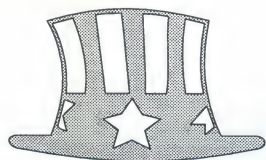
Phone TTY PC/DAN,

Hackensack, NJ

(201) 489-3323

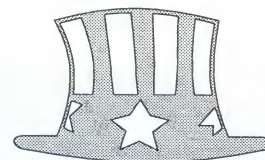
VCD PC/DAN,

Phoenix AZ



FEDERAL GOVERNMENT BBS

List of 111 Bulletin Board Systems



ABLE INFORM	(301)589-3563	Nat Rehab Center & Data of Asist. Tech	IRSC BBS (GSA)	(202)501-2014	GSA information and lists
ADAALS/Navy	(202)342-4568	Ada Language Sys/Navy Bulletin Board	JAG-NET	(703)325-0748	Navy Judge Advocate General
ADA Tech Supp. BBS	(804)444-7841	Assist interested in ADA	Kelly AFB	(512)925-9096	
ADAIC	(703)614-0215	ADA Information	LC News Service	(202)707-3854	Library of Congress News Service
ALF	(301)504-6510	National Agricultural Library BBS	Labor News	(202)219-4784	Dept of Labor information and files
ALIX	(202)707-4888	Automated Library Info eXchange	Langley AFB	(804)764-3995	
ASN	(703)746-2645		Malstrom AFB	(406)731-2503	
ATTIC (EPA)	(301)670-3813	Alternative Treatment Tech Info Cent.	Megawatt 1	(202)586-0739	Information on energy and DoE
Applied Modeling	(919)541-325	EPA Atmospheric Models	Metro-Net	(202)475-7543	Army Morale, Welfare, and Rec.
BOM-BBN	(202)501-0373	Bureau of Mines-Bulletin Board Net	NADAP	(703)693-3831	Navy Drug and Alcohol Abuse Prev.
BRX Info Corner	(703)756-6109	BBS for IRS Employees	NASA Spacelink	(205)895-0028	Education affairs, flight data, space history
BULLDOG WEST	(805)985-9527	Harpoon support	NAVTASC	(301)238-2131	NAVCOMTELSTA Washington DC
BUPERS Access	(703)614-8059	Navy Personnel Information	NCJRS-BBS	(301)738-8895	National Crimmial Justice Refer. Sys
CABB	(202)647-9225	Passport Info/ Travel Alerts	NCTS BBS	(202)475-7885	Navy Computer & Telecom Station
CASUCOM (GSA)	(202)653-7516	Interagency Shared Serv/Resources	NDB-BBS	(301)436-5078	Human Nutrition Information Service
CERCNET (DARPA)	(800)331-3808	Concurrent Engineering Research Net	NGWS BBS	(703)602-1916	Naval Gun Weapon System BBS
CIC-BBS (GSA)	(202)208-7679	Consumer Information Center	NIDR Online (NIH)	(301)492-2221	Nat. Institute of Dental Research
CLU-IN (EPA)	(301)589-8366	Superfund Data and Information	NIST ACTS	(303)494-4775	Auto Comp Tele. Service, PC to NBS Time
CPO-BBS (Census)	(301)763-4574	Jobs at the Census Dept	NOAA Space Lab	(303)497-5042	Solar flare and geomagnetic data
CRS-BBS	(202)514-6193	Amer. With Disabilities Act Info	NOAA-ESDD (NOAA)	(202)606-4662	NOAA Earth Sys Data Direct
Census-BEA (Census)	(301)763-7554	Census BEA Electronic Forum	NPS-BBS (EPA)	(301)589-0205	Nonpoint Source Program BBS
Computer Sec. (NIST)	(301)948-5140	Nat Comp Sys Lab Comp Sec BBS	NRRC	(518)370-0118	Naval Reserve Readiness Center
DASC-ZE	(703)274-5863	PC Info and files	NSSDC\NASA\Gd	(301)286-9000	The NASA NODIS Locator Sys.
DCBBS (DC Govt)	(202)727-6668	DC Government Information	NUPERS ACC BBS	(703)614-8059	
DMIE (NIST/NCSL)	(301)948-2048	NIST/NCSL Data Manage Info	Naval Justice School	(401)841-3990	
DRIPSS (EPA)	(800)229-3737	Drinking Water Info Process Support	OASH-BBS (NAPO)	(202)690-5423	AIDS Information & Reports
EBB	(202)482-3870	Economic data and info	OEA BBS	(202)208-7119	Interior's Off of Environment. Affairs
ELISA System	(703)697-6109	DoD Export License Tracking Sys	OERI BBS	(202)219-2011	Educational Research and Improvement
EOUSA-BBS	(202)501-7521	BBS for U.S. Attorneys	OIS	(202)514-6102	US Bureau of Prison employees
EPUB	(202)586-2557	Energy information and data	OPBO-BBS	(202)482-1423	Internal comm. for DOC employees
Energy Information	(202)586-8658	Petrol, Coal, Electric, Energy Stats	Offshore-BBS	(703)787-1181	Off Shore Oil & Gas Data
FAA Safety Exchange	(800)462-3814	Small Plane Safety Reports & info	PIM BBS (EPA)	(703)305-5919	Pesticide Information Network
FCC Public Access	(301)725-1072	Equip. authorization status advisory serv.	PPIC-BBS (EPA)	(703)506-1025	Pollu. Preven, Clean Product, Ozone
FCC-State Link	(202)632-1361	FCC daily digest & carrier stats/report	Patent Lic. BBS(NTIS)	(703)487-4061	Speeds acc. to Fed lab research
FDA's BBS	(800)222-0185	FDA info and policies	PayPerNet #1 (OPM)	(202)606-2675	Fed. Pay & Per. Management BBS
FDA/DMMS	(301)443-7496	PMA, IDE, 510k & guidance documents	Port O'Call	(504)947-8253	Navy Computer & Telecomm. Command
FEDERAL BBS	(202)512-1397	GPO and Govt Data (Fee Based)	QED-BBS (USGS)	(800)358-2663	Qk Epicenter Determ and EQ data
FEDIX	(800)783-3349	Links Fed Data to Higher Education	SALEMDUG-BBS	(202)646-2887	State and local FEMA user groups
FERC-CIPS BBS	(202)208-1781	Fed Energy Regulatory Commission	SBA On Line (SBA)	(800)859-4636	SBA Information and data
FHA BBS	(202)366-3764	FHA staff and interested public	SBAI-BBS (SBA)	(202)205-6269	Small Bus. Admin internal BBS
FMS-BBS	(202)874-6817	Inventory management data & programs	SESD-EBB	(703)285-9637	PC software & contract info
FRBBS (NIST)	(301)921-6302	FRBBS - Info on Fire Research	SRS	(202)634-1764	Fed. R&D budget, Tech labor market stats
FREND #1 (Natl Arch.)	(202)275-0920	Fed. Reg Elect. News Delivery	STIS (NSF)	(202)357-0359	Science & Tech Information Sys.
Fed Whistleblower	(202)225-5527	Report fraud, abuse, waste in US Govt	SWICH BBS	(301)585-0204	EPA_Solid Waste Management
Fort Benning	(717)686-3037		S. Weath. Data (NWS)	(301)899-1173	Sample data from Fee Based Sys.
Fort Drum	((315)772-7836		Shaw AFB	(803)668-4316	
Fort Leavenworth	(913)684-7675		TEBBS (OGE)	(202)523-1186	Office of Government Ethics BBS
Fort Meyer	(703)524-4149	Officers' Club	TELENEWS	(202)586-6496	Data and info on Fossil fuels
Fort Richie	(301)878-4573		USA-GPCS BBS	(703)285-9637	Army Info System Software
GPSIC	(703)866-3894	GPS & Loran Info, Status & Data	USCS-BBS (Customs)	(202)376-7100	Cust. and Exchange Rate Data & Info
GPSIC	(703)866-3890	Information on Global Positioning Sys	USGS QED	(303)273-8672	Earthquake epicenter data, geomagnetism
Gulfline (EPA&NOAA)	(800)235-4662	Gulf Coast Pollution Info	USGS-BBS (USGS)	(703)648-4168	Geological Survey BBS/CD-ROM Info
HSOL-BBS (HHS & UMD)	(301)985-7936	Head Start BBS (Region III)	USNO ADS	(202)653-1079	GPS data, sunrise/set/surveying data
HUD-N&E BB (HUD)	(202)708-3563	HUD News & Events BB. P R	USNO Time of Day	(202)653-0351	USNO Atomic clock, trans. ASCII time string
IHS-BBS (HHS)	(301)443-9517	Indian Health Service BBS	VA-BBS	(202)523-7399	VA info and PC programs
			WSCA-BBS	(800)735-7396	Board of Wage & Service Contract Appeal

BOARDWATCH MAGAZINE

LIST OF WORCESTER MASSACHUSETTS ELECTRONIC BULLETIN BOARDS - COURTESY JIM METZLER, MIWOK VILLAGE BBS

AREA CODE: 508

Worcester ●

BBS: 66

POPULATION: 169,759

AREA: 37.6 sq. miles

POPULATION Per BBS: 2,572

BBS Per AREA: 1.75

14400 bps 40

9600 bps 4

2400 bps 19

1200 bps 3

BBS TITLE	NUMBER	SPEED	SOFTWARE	SYSOP	LOCATION	COMMENTS
Alphaville	798-3679	2400	Tag	Arol Ambler	Worcester	FidoNet, Qnet, Tradewars
Auburn Stop	832-6887	14400	Gap	Dick Pettit	Auburn	ASP Software files
Back Woods	892-1186	14400	RA	Harold Carlson	Leicester	FidoNet, BayNet, QNet, Games, and files
Basement BBS	832-6536	2400	TriBBS	Gary Santora	Worcester	TriNet, Tradewars, The Pit and other games
Bear's Cave	795-7672	14400	WWIV	(_)Rsan	Worcester	Full line of WWIV support files
Belly of the Beast	797-5112	2400	Wildcat	Eric Hamel	Worcester	FidoNet, patches, games, files
Bit Bucket	755-4682	14400	WWIV	Dan Steele	Worcester	CitiLink, WWIVNet
Black Dragon Inn	870-5794	14400	WWIV	Raistlin Majere	Westborough	FidoNet, WWIVweb, WCSAnet
Blue Box BBS	829-3475	14400	QBBS	Uncle Fester	Holden	Midi, Mods, GIFs, games, utilities
Broom Closet	799-3650	1200	Major	School System	Worcester	Educational BBS of Worcester Public Schools
Brotherhood of Rose	793-2820	14400	Wildcat	David Rose	Worcester	FidoNet, WCSAnet, WWIV, Apogee games
Call Again Soon	791-8456	16800	TriBBS	Joe Johnson	Worcester	TriBBSnet, The Pit, Global Wars, modem games
Cam's Stop	829-6347	14400	TriBBS	Cameron Lufkin	Holden	MAC files, windows games, BayNet, TTN
Compiler Net	829-3724	14400	Cnet	Stephen Bruce	Holden	FidoNet
CompuSmart BBS	865-4474	9600	PC Board	Bill Bachand	Millbury	CD ROMS, FidoNet, hardware & software sales
Cool World	885-3167	2400	WWIV	LARaiders	Spencer	WWIVweb, WWIVlink, IceNet, Lyrics file area
The Crystal Dagger	842-3127	2400	WWIV	Rya Nightshade	Shrewsbury	RPG based, story board
Cyberscape	368-7781	14400	TBBS	Dave White	Lancaster	Shareware, Apogee, Epic MegaGames
DataCore	832-0935	14400	PC Board	Paul Outerson	Auburn	BayNet, FidoNet, EmpireNet, ThrobNet, GIFs
Davy Jones Locker	865-3290	16800	PC Board	Richard Kenadek	Millbury	Shareware files, adult areas
Dead Angels Society	885-7342	2400	WWIV	Angel	Spencer	GeniusNet, FidoNet, GreyNet, WCSAnet, Apogee
Draconian Empire	854-1737	14400	Wildcat	Zarconian Master	Worcester	The Pit, Alpha Colony, Global Wars
The Dragon's Lair	842-2665	14400	Renegade	Jason Bibeau	Shrewsbury	Atari ST files, FoReM network
East of the Moon	393-1362	2400	FoReM	Ethan Rider	Northboro	
Enchanter's Temple	476-1437	14400	WWIV	Matthew Miller	East Douglas	

Excalibur	754-6469	Wildcat	Wildfire	Worcester	Adult section includes games, files, GIFs
The F Stop	757-5568	Wildcat	Scott Putnam	Worcester	General and Adult GIFs, jokes, sports talk
GameMasters Sanctum	852-4641	VBBS	Lord Doomslayer	Worcester	VirtualNet, RPGnet, IceNet, WWWVweb, RPG games
Gamer's World	422-8904	Wildcat	Ernest Brackett	Sterling	Online games, game files, Epic, Apogee, MVP
Good News BBS	754-6132	Telegard	Pat Geneva	Worcester	Christian oriented, 9 online games
GweepNet III	791-6722	UNaXcess	Blank Jer	Worcester	Messages, GweepCo
Hobby Shop	752-2632	PC Board	John Murphy	Worcester	FidoNet, IBM, Amiga, Mac files, and hobbies
Ideal Studies	757-1806	PC Board	Peter Longo	Worcester	Emphasis on Fractals, RIME network
Infinity BBS	853-2481	Renegadr	Mad Hamster	Worcester	
Information Society	832-7542	VBBS	Charles Grosvenor	Auburn	WWWVweb, IceNet, VirtualNet, Cygnus software
King David's Spaceship	756-1442	Phoenix	Richard Bostock	Worcester	PhoenixNet
Klingon Empire	791-4576	Wildcat	Dave Carpenter	Worcester	WCSAnet
LBD Consultants	987-6182	Wildcat	John Sibley	Oxford	FidoNet, SDN, Apogee, Epic, MVP games
Leading Edge Info Line	836-3967	Chairman		Westborough	Leading Edge hardware & software support
Lighthouse	892-8857	Wildcat	George LaFreniere	Leicester	Handicap, Recovery, Abuse, & Medical files
Lightning Strike	842-6216	Renegade	Shadow Viper	Shrewsbury	Digital Warfare, ShadowNet, games
Link BBS	756-0735	PC Board	Billy Campbell	Worcester	Shareware CD ROM, FidoNet
Link II BBS	798-0029	PC Board	Beth Clair	Worcester	Many game doors, CD ROM
Littlest BBS	839-7203	RyBBS	Night Hawk	Grafton	Games, files, adult themes
Minority BBS	791-3303	FoReM	Bob McKeegan	Worcester	Apple, Atari, Amiga, Commodore, CP/m, DEC, Tandy
Mithril Hall	852-4807	Major	Jaime Bozza	Worcester	Tele-conferencing, multi-player games
Miwok Village	754-6512	Wildcat	Jim Metzler	Worcester	Support for WildCat DupMsg, UTI, and other utilities
Quinsigamond Comm	852-4798	FoReM	Gerry Bankert	Worcester	IBM, Apple, Atari files, messages, quizzes
The Repair Shop	856-0924	Maximus	Chet Lawrence	Worcester	GIFs, adult files
Rocket Town BBS	756-2227	PC Board	Gary Groleau	Worcester	Online shopping mail
Sanctuary	892-8529	WWIV	Avon der Rhunmeister	Worcester	Wiccan topics, online games, IceNet WWWVweb
Schunix	752-8305	Sun OS	Robert Schultz	Worcester	Public access UNIX, Internet e-mail, newsgroups
Skeletons of Society	435-7884	Tag	Mr. Death	Hopkinton	
Smorgasboard!	987-6305	Wildcat	Paul Sepuka	Oxford	WildNet, RaceNet, MSInet, CD ROMs
Software Creations	368-4137	PC Board	Dan Linton	Clinton	Home of Apogee Software Productions
StormBlade BBS	368-7971	WWIV	Derek Boire	Lancaster	IceNet, WWWVnet, FidoNet, online games
Total Eclipse	865-3140	Maximus	Ben Goodwin	Millbury	FidoNet, Music & Midi files, OS2 files
Totallyboard	422-9730	Hermes	Chris Schwarz	Sterling	MAC support, MAC files
Vampire Bar!	755-9716	PC Board	Darryl Pierce	Worcester	Home of BasMail, BasNet, BasChat doors
WWIS Linux	793-9568			Worcester	LINUX software support
Waystar	481-7147	Maximus	Kevin Porter	Marlborough	
White Knight	842-2201	WWIV	White Knight	Shrewsbury	WWWVnet
Woodland Walk	757-9035	RyBBS	Peter Buckley	Worcester	Sysop conversations
Worcester Mac Users	832-5844	Telefinder	Chris Silberberg	Worcester	MAC support
World of Burgers	845-6969	Wildcat		Shrewsbury	Adults only, GIFs, animations & text files
Zabriskie Point	248-3901	PC Board	Daniel Creeron	Charlton	

BOARDWATCH MAGAZINE

LIST OF BBS SOFTWARE VENDOR PRODUCT SUPPORT/DEMO BULLETIN BOARD SYSTEMS - JUNE 1993





PRODUCT	COMPANY	BBS PHONE	NOTES	VOICE	MAILING ADDRESS
IBM/DOS/WINDOWS					
Auntie	Wes Meier	(510)937-0156	DOS, Fine BBS software		1988 Via Appia, Walnut Creek, CA 94598
Celerity	Brendan Woihraye	(310)693-9405	DOS - Pascal/Assembler	(310)969-5539	409 North Clark St, Suite D, Orange, CA 92668
Darkstar	J. Thomas Hunter	(501)631-9131	Many features		2409 W Dogwood, Rogers, AR 72756
DCI	Nordevald Software	(813)961-0788	DOS		POB 280138, Tampa, FL 33682
DLX	Inner Loop Software	(818)893-7600	Multiline - 32 lines - excellent chat/social system.	(818)894-4150	17939 Chatsworth St. #192, Granada Hills, CA 91344
Falken	Info Share	(703)803-8000	DOS/Multiline-16 lines-runs ext programs	(703)491-5823	PO Box 1501, Woodbridge, VA 22193
GAP	GAP Development Co.	(714)493-3819	DOS/LAN 99 Nodes - Fast ISAM Searches		24242 Porto Fino, Monarch Beach, CA 92629
Harmony BBS	Jasen Fici/Alex Bloom	(607)748-5276	Flexible software, many features		917 Main St, Vestal, NY 13850
Kitten	System Enhancement Assoc.	(804)442-5867	DOS, OS/2, Multi-line - also SEAmail Fidonet mailer	(804)442-5865	PO Box 949, Nassawadox, VA 23413
Major BBS	Galacticomm, Inc.	(305)583-7808	DOS/Multiline - 255 lines-chat-multiuser games	(305)583-5990	4101 SW 47th Ave #101, Ft Lauderdale, FL 33314
Megahost	ASCI Computer Interprises	(209)836-2402	DOS/Single Line - Small, Easy to Run	(512)272-5770	231 Market Place # 353, San Ramon, CA 94583
OmegaComm	Larry Loiselle	(512)452-6350	Nice ANSI BBS, Easy to setup and use	(412)364-4017	Rt 2 Box 75-G, Manor, TX 78653
Opus-CBCS	Opus-CBCS Development	(412)366-5208	FidoNet compatible BBS - multi-node	(612)894-5580	8024 Crest Road, Pittsburgh, PA 15237
Oracom	Surf Computer Services	(612)894-5878	DOS/Multiline - 32 lines - social chat	(801)261-1686	1103 E Cliff Rd, Burnsville, MN 55337
PCBoard	Clark Development Company	(801)261-8976	DOS/LAN-255 Nodes-Popular BBS for shareware BBS	(516)938-0506	PO Box 571365, Murray, UT 84157
PowerBBS	Russel Frey	(516)822-7396	Runs under Windows 3.0-Up to 8 tel lines, Doors	(914)833-3479	35 Fox Ct., Hicksville, NY 11801
Powerboard BBS	Scott Brown / nuIQ Software	(914)833-1479	LAN and DESQview compatible up to 999 lines		415-A Richbell Road, Larchmont, NY 10538
QuickBBS	Steve Gabrilowitz	(407)380-1701	DOS/Single Line - Shareware clone of TBBS		POB 678255, Orlando, FL 32867
RBBS	Ken Goossens	(703)978-6360	DOS/LAN Multinode - Free - BASIC Source Avail	(703)978-4339	5020 Portsmouth Rd., Fairfax, VA 22032
Remote Access	Continental Software	352-25-1621	DOS/LAN 99 nodes - TBBS/QuickBBS clone	352-25-1619	9a bLVD JOSEPH II, Belair, I-1840 Luxembourg
Robo-Board	Seth Hamilton	(819)685-0957	EGA/VGA/ANSI support, Graphics online	(819)682-6670	PO Box 633, Aylmer, QB, Canada J9H 6L1
RyBBS	Gregory Ryan	(414)962-1097	Easy to setup and configure	(414)962-5967	PO Box 11134, Shorewood, WI 53211
Sapphire	Pinnacle Software	(514)345-8654	Easy Installation and Setup - Single Line Package	(514)345-9578	Box 714 Airport Road, Swanton, VT 05488
Searchlight	Searchlight Software	(516)689-2566	DOS/LAN - Multinode - Visual and easy to use	(516)751-2966	PO Box 640, Stony Brook, NY 11790
Spiffire	Mike Wolz	(515)225-8496	DOS Single Line		913 39th St., W.Des Moines, IA 50285
Synchronet	Digital Dynamics	(714)529-9547	Multiline up to 250 nodes, fully configurable	(714)529-6328	PO Box 501, Yorba Linda, CA 92686
TAG	Paul Williams	(313)582-6671	Support for TAG BBS Software		Dearborn, MI
TBBS	eSoft Inc.	(303)699-8222	DOS/Multiline - 64 lines per machine - good database	(303)699-6565	15200 E Girard Ave # 3000, Aurora, CO 80014
TriBBS	Mark Goodman	(207)941-0805	DOS/Single Line - Fido capable - offline mail	366 14 St, Bangor, ME 04401	
TurBoard	Software@Work	(404)395-6327	World's First NAPLPS BBS	(404)395-6525	PO Box 566491, Atlanta, GA 31156
VBBS	Roland de Graaf	(616)399-4818	1028 nodes, bulletin Fido technology	4246 Elizabeth Ave, Holland, MI 49424	
Wildcat!	Mustang Software	(805)395-0650	DOS/LAN/250 Nodes - Very good on LAN installations	(805)395-0223	PO Box 2264, Bakersfield, CA 93303
APPLE/MACINTOSH					
Proline	pro-sol/Morgan Davis	(619)670-5379	Apple II/GS - Unix lookalike BBS - Usenet News	(619)670-0563	10079 Nuerto Ln, Rancho San Diego, CA 92078
First Class	SoftArc, Inc.	(416)609-2250	Multiline Macintosh BBS Package	(416)299-4723	805 Middlefield Road, Ste. 102, Scarborough Ontario,
Hermes	Computer Classifieds	(206)643-2874	MAC - Multiline BBS for Macintosh - Very good		12819 SE 38 St # 101, Bellevue, WA 98006
Mansion	Software Design	(515)279-6769	Macintosh BBS package	(515)276-9650	PO Box 12016, Des Moines, IA 50312
Novalink Pro	ResNova Software Inc.	(714)379-9004	24-Line Mac BBS Package - Graphics/VT-100	(714)379-9000	5011 Argosy # 13, Huntington Bch, CA 92649
Second Sight	Scott Watson, FreeSoft Co.	(412)846-5312	Single Line BBS Software for Macintosh	(412)846-2700	105 McKinley Road, Beaver Falls, PA 15010
Tabby	Michael E. Connick	(908)988-0706	MAC - Fidonet Mail Interface for Macintosh		PO Box 307, Bradley Beach, NJ 07720
Telefinder	Spider Island Software	(714)730-5785	Multiline Macintosh BBS - up to 20 lines	(714)669-9260	4790 Irvine Blvd. Ste. 105-347, Irvine, CA 92720
OS/2					
Magnum BBS	Chuck Gilmore	(805)379-3450	OS/2/LAN-8 Lines per computer - looks like PCBoard	(805)379-3210	1285 Falling Star Ave., Thousand Oaks, CA 91362
Maximus-CBCS	Scott Dudley	(613)389-8315	FidoNet compatible BBS - multi-node		777 Downing Street, Kingston Ontario, Canada K7M 5N3
Multi-Net	Multi-Net Communications	(503)883-8197	Multi-Line OS/2 BBS Package	(503)883-8099	15702 Black Bear Ct., Klamath Falls, OR 97601
UNIX					
CocoNet	Coconut Computing, Inc.	(619)456-0815	Unix - Hires Graphics like Prodigy - term program	(619)456-2002	7946 Ivanhoe Ave Ste 303, La Jolla, CA 92037
TEAMate	MMB Development Corp.	(310)318-5302	Unix/Multiline - VT100 ANSI Graphics	(310)318-1322	904 Manhattan Ave., Manhattan Beach, CA 90266
XChange	Z/Max Computer Solutions	(315)635-1947	Unix - Pull Down Menus/Pop-up Windows	(315)635-1882	8287 Loop Road, Baldwinville, NY 13027
Magpie	Steve Manes	(212)420-0527	DOS/UNIX Conferencing Software with unique threading	(212)533-1692	648 Broadway Ste 300, New York, NY 10012
WAFFLE	Darkside international	(408)245-7726	DOS/UNIX - Provides UUCP function for DOS machines		PO Box 4436, Mountain View, CA 94040

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BOARDWATCH

LIST OF BBS LIST KEEPERS

This listing comprises a list of those who compile and maintain lists of bulletin boards, either by topical category, or by some geographic area or definition - often by area code. The primary bulletin board system where the list can be downloaded electronically is also included.

BBS LIST TOPIC	LIST AUTHOR/EDITOR	CONTACT BBS	TELEPHONE
Republic of South Africa	Henk Wolsink	Catalyst BBS	(041)34-1122
BBS With Handicapped Focus	Bill McGarry	Handicap News BBS	(203)337-1607
Connecticut AC 203	Kevin Brook	Creative Edge BBS	(203)743-4044
Seattle AC 206/West Washington	Bob Dinse/Nanook	Eskimo North	(206)367-3837
Tacoma Washington AC 206	Richard Langsford	AmoCat BBS	(206)566-1155
Autocad Related BBS	Jason Osgood	SAUG BBS	(206)644-7115
Kitsap County Washington	Michael Schuyler	Quicksilver BBS	(206)780-2011
Astronomy/Space BBS	John Pickens	Starbase III BBS	(209)432-2487
Central California AC 209	Jack Porter/Madera UG	Zen Den Systems	(209)675-8436
Graphical User Interface BBS	David Shapiro	The Gooley (GUI) BBS	(212)876-5885
Southern California	Mike Hefferman	SOCAL Corner	(213)422-7942
96 List - 9600+bps BBS	Ken Sukimoto	Downtown BBS	(213)484-0260
Open Access UNIX Site List	Phil Eschallier	LGNP1 (login:BBS)	(215)348-9727
Pennsylvania AC 215/609/302	Ron Brandt	DSC/VOICENET	(215)443-9434
Cleveland Area 216	Eric Rickin	Wine Cellar	(216)382-2558
Conservation/Nature BBS List	D.Wendling/JS Christianso	Coin of the Realm	(301)585-6697
Ham/Amateur Radio BBS	Stan Staten	3WINKs BBS	(301)590-9629
Handicapped Issues BBS	Richard Barth	HEX BBS	(301)593-7357
Desktop Publishing BBS	Frank Atlee	Infinite Perspective	(301)924-0398
Medical Issues BBS	Edward Del Grosso	Black Bag	(302)731-1998
South Florida Area 305/407	Eric Thav	Silicon Beach BBS	(305)474-6512
California AC 310	Jim Walton	Illusions BBS	(310)804-3324
Detroit Area 313	Horst Mann	Tony's Corner	(313)754-1131
St. Louis AC 314	Beth Brooks	Fire Escape's Dir	(314)741-9505
ASP BBS Member List	Bob Ostrander	PBS-BBS	(317)856-2087
Engineering Related BBS	Arthur Petrzela	Computer Plumber	(319)337-6723
Rhode Island Area 401	Mike Labbe	Eagle's Nest	(401)732-5292
Atlanta Area 404	Online Atlanta Society	OASIS	(404)627-2662
Atlanta Area 404	Rodney Aloia	INDEX System	(404)924-8472
Orlando Florida AC 407	Matt Drury	London BBS	(407)895-1335
Baltimore Area 410	Brad Blase	Network BBS	(410)247-3797
Pittsburgh AC 412	Chas Stokes	Quad-Tech Systems	(412)262-4794
National BBS List	DP McIntire/Beth Spotts	Ameriboard	(412)349-6862
Milwaukee Area 414	Jay Jadofsky	Priplanus	(414)442-0170
Arkansas Area 501	Bob Underdown	The Gaslight BBS	(501)444-8420
Louisville KY AC 502		Old Soldier's Home	(502)942-2848
Kentucky AC (502)	Dan Elder	National Data Exchg	(502)942-2848
Portland Oregon BBS	Lisa Gronke	DawGone Disgusted	(503)297-9145
New Orleans BBS List	Jeff Jones	Southern Star BBS	(504)885-5928
Worcester MA AC (508)	Jim Metzler	Miwok Village BBS	(508)754-6512

BBS LIST TOPIC	LIST AUTHOR/EDITOR	CONTACT BBS	TELEPHONE
San Francisco Area 408/415/510	Julie McGrew	Bay List BBS	(510)339-1045
Austin Area BBS List AC 512	Gordon L. Harlan	--ACE*BBS--	(512)258-9553
Selected BBS	Joseph Caplinger & Son	J&J's BBS	(513)236-1229
List of Gay/Lesbian BBS	Eric Blair	S-TEK BBS	(514)597-2409
AC 516 Free Shareware BBS	Harold Stein	Long Island Exchange	(516)385-7882
Area Code 517 - Mid-Michigan	Rick Rosinski/SAMM	Wolverine BBS	(517)695-9952
Business/Professional BBS	Dennis Hauser	Delight The Customer	(517)797-3740
Phoenix AC (602)	John Mendivil	Majestic Royalty BBS	(602)278-1651
Phoenix AC (602)	Sue Widemark	Cheese Whiz BBS	(602)279-0793
Wisconsin 608		JW-PC Dataflex.HST	(608)837-1923
New Jersey AC 609	Dave Schubert	The Casino PCBoard	(609)561-3377
New Jersey Area 201/609/908	Wayne R. Morton	Praedo BBS	(609)953-0769
Minnesota Twin Cities AC 612	Barry Watson	Abiogenetic BBS	(612)489-7983
San Diego, CA AC 619	Ron Dipold	ComputorEdge	(619)573-1675
San Diego AC 619	Joe Nicholson	General Alarm	(619)669-0385
Apple II BBS with Internet con	Morgan Davis	pro-sol	(619)670-5379
Virginia AC 703/804	Scott Dickinson	TOSOR BBS	(703)366-4620
OS/2 BBS Systems	Pete Norloff	OS2/Shareware BBS	(703)385-4325
Washington DC BBS List	Mike Focke	Interconnect	(703)425-2505
Genealogy Related BBS	Richard A. Pence	NGS-CIG	(703)528-2612
Ontario Area 705	Alex Draper	Cottage Country BBS	(705)835-6192
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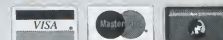
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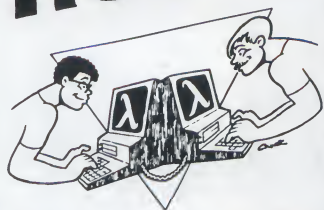
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Cleveland Freenet	(216)368-3888	News and Entertainment - 17 Lines Community Focus	Case Western University/AT&T/Ohio Bell	Cleveland, OH
Community News Service (CNS)	(719)520-5000	DC Tour Info. & Help, Online Publications, Treknet Fidonet	Klaus Dummier	Colorado Springs, CO
CommunityLink @ DCWAS	(703)765-0501	Book/Publishing Consultant Nick Anis' BBS	Wayne Rutledge/Bob Burnett	Alexandria, VA
Compact Audio Disk Exchange	(415)824-7603	Treasure Hunting - Metal Detectors - Online Catalog	Wayne Gregori	San Francisco, CA
Computer Business Services	(714)396-0014	Adjunct to Excellent Canadian PC Newspaper	Nick Anis Jr.	Diamond Bar, CA
Computer Garden	(301)546-1508	PR Newswire/ Business Wire. Logon: hello user.cdx	Milford P. Webster	Salisbury, MD
Computing Canada Online	(416)497-5263	Product Support for Crosstalk for Windows/MK4/XVI	Computing Canada Newspaper	Willowdale, Ontario
Corporate Data Exchange (CDX)	(609)683-4422	Multiline Service - Ham Radio - Humor - TDBS Applications	LaFountain Research Corp/Tad LaFountain	Pinceton, NJ
Crosstalk Communications BBS	(404)740-8428	All lines to v.32bis/v.42/v.42bis. CyberTools for BBS'es	Digital Communications Associates	Roswell, GA
Cul-de-Sac Bar & Grill	(508)429-1784	DAK Mail Order Catalog - Breakmakers - CD ROMS - Computers	Pete White	Holliston, MA
CyberStore - a COCONET BBS	(604)526-3676	Home of WAFFLE; Unix UUCP BBS Software for DOS and UNIX	CyberStore Online Info. Systems Inc.	New Westminster, BC
DAK Online Resource Center	(818)715-7153	25 line Major BBS	DAK Industries/Tom Krohn	Canoga Park, CA
Dark Side of the Moon	(408)245-7726		Thames E. Dell/Darkside International	Mountain View, CA
Data Core BBS	(310)842-6880		Matthew Schoen/Delta Enterprises	Los Angeles, CA

DataLink RBBS System	(214)394-7438	Weather Satellite Imaging, NOAA Satellite Tracking-AMSAT-NA	Dallas Remote Imaging Group/Jeff Wallach	Carrollton ,TX
Dawg Byte	(615)385-4268	ANSI Art Club 1:116/29	Kevin Snively	Nashville ,TN
Deep Cove BBS	(604)536-5885	16 line TBBS, 3500 MBytes files for IBM, MAC, Amiga	Wayne Duval	White Rock ,BC
Denver Exchange, The 104/909	(303)623-4965	Denver's Most Diverse Gay/Lesbian Info Service	James Craig	Denver ,CO
Denver Free-Net	(303)270-4865	Free Community Online Service - Health Info	University of Colorado Health Science	Denver ,CO
DragonNet 336/451	(409)765-5459	Multiline MAJOR BBS with 4 GB - 64 lines Interactive Games	Robert Michael/Dragon Profit Systems	Galveston Island ,TX
EarthArt BBS	(803)552-4389	Wildlife/Conservation Art Gallery GIF Images	Ambassador Wildlife Gallery/Bob Chapman	North Charleston ,SC
East Bay X-Change 372/888	(803)556-7485	Home of XRS Offline Mail Reader	Barry Rattedge	McClennanville ,SC
Ed-Net	(604)732-8877	University School Board Multi-Line Educational Network	Mary Macdonald/Vancouver Board of Ed	Vancouver ,BC
Electric Ideas Clearinghouse	(206)586-6854	Energy Efficiency Efforts In Pacific Northwest-HydroElec	Bonnevillle Power Administration WSE	Olympia ,WA
Electronic Publishers BBS	(503)624-4966	News-Finance-Sports-Games-2GB File Library	Brian Cash	Portland ,OR
Electronic Zone, The	(412)349-3504	Specializing in Hypertext	William R. Forbes	Indiana ,PA
Energy Info Admin E-Publications	(202)586-8658	Variety of Petroleum/Coal/Electricity Energy Statistics	US Department of Energy	Washington ,D.C.
eSoft Product Support BBS	(303)699-8222	Home of The Bread Board System (TBBS) BBS Software	Phil Becker/eSoft Inc.	Aurora ,CO
Event Horizons	(503)697-5100	64 Line Digitized Graphics Image Library - Adult, GIF files	Jim Maxey	Lake Oswego ,OR
Exchange BBS, The	(713)521-2191	Largest Gay/Bi/Lesbian Multiline BBS in Houston	James Craig/John Fields	Houston ,TX
EXEC-PC	(414)789-4210	Interlink Netmail National Host - Multiline PCBoard System	Bob and Tracey Mahoney	Elm Grove ,WI
Executive Network	(914)667-4567	Interlink Netmail National Host - Multiline PCBoard System	Andy Keeves	Mt. Vernon ,NY
Eye Contact BBS	(415)255-5972	22 line Oracom - Gay Issues - Popular Chat System	Bill Montgomery	Mill Valley ,CA
Falken Support BBS	(703)803-8000	Support for FALKEN software - 16 lines - doors - chat	Herb Rose	Woodbridge ,VA
Farwest BBS	(604)381-3934	Large Western Canada Galacticorn Info System	Ren L'Ecuier	Victoria ,BC
FAX/Satellite Services BBS	(619)224-3853	NOAA Weather Satellite Images - Russian/Japanese Sat Pics	Scotty Olson	San Diego ,CA
FCC Public Access Link	(301)725-1072	Equipment Authorization Status Advisory Service	Federal Communications Commission	Columbia ,MD
FEDLINK ALIX II	(202)707-4888	Info on Federal Libraries - Excerpts Library of Congress News	Federal Library Information Network	Washington ,D.C.
Fido Software BBS 1:125/111	(415)863-2739	The First Fido BBS and home of Fido BBS 12s	Tom Jennings	San Francisco ,CA
Fido Tech Stand	31-30-735900	Fidonet Technical Information for Holland	J.J. van der Maas	Utrecht ,Holland
FOG City BBS 125/10	(415)863-9697	Gay Community BBS - AIDS Info - Desktop Publishing - MACs	Bill Essex	San Francisco ,CA
Fred the Computer	(808)872-8461	Newspaper BBS, Wierdnet Newswire, List of MA Libraries	Middlesex News-Adam Gaffin	Framingham ,MA
FreeBoard BBS, The	(804)744-0797	Desktop Publishing File Distribution Network 1:264/212	Bill Hunter	Midlothian ,VA
FSBBS Prototype System	(805)543-8227	Home of FSUUCP and FSBBS - Unix Communications for DOS	Chris Ambler, Fubar Systems	San Luis Obispo ,CA
Fun Connection	(503)753-8431	Multiline Entertainment - 8 Lines Games/Chat/News	Vincent Reece	Corvallis ,OR
Galacticorn Demo System	(305)583-7808	Customer support for Major BBS	Galacticorn	
Garbage Dump, The	(505)294-5675	Online Chat Service - Adventure Games - National Chatlink	Dean Kerl/Datasafe	Albuquerque ,NM
Gateway Communications BBS	(714)863-7097	Novell Netware/TCP-IP Shareware Utilities	Gary Gabrick	Irvine ,CA
Gateway On-Line	(313)291-5571	Interactive Chat, Multiplayer Games, Usenet/Internet, E-mail	Jeff Bretnier/Bill Mullen	Rockwood ,MI
GDP Technologies	(303)673-9470	Outstanding IBM Shareware on a small system	Tom Getty's	Lafayette ,CO
General, The	(619)281-8616	Popular File Library - GIF Images	Marc Teitler	San Diego ,CA
GISnet BBS	(303)447-0927	Graphics Information Systems/Mapping topics	Bill Thoen	Boulder ,CO
GLIB	(703)578-4542	Gay and Lesbian Information Bureau - 11 Lines - 9600 bps	Community Educational Svcs. Foundation	Arlington ,VA
GPO WINDO Online Service	(202)512-1387	Fed Information from EPA, DOE, State Department - others	US Government Printing Office	Washington ,DC
Greenpeace Environet	(415)512-9108	Ecological and Peace Issues - Disarmament/Toxics/Wildlife	Dick Dillman/Greenpeace	Norcross ,GA
Hayes Advanced Systems Support	(800)874-2937	Customer Support Line for Hayes Customers, V-series/Ultra	Hayes Microcomputer Products	Peoria ,IL
Heartland Free-net	(309)674-1100	Community Online Service - Free Internet E-Mail Boxes	Peoria County Board/Bradley University	Philadelphia ,PA
Herpnet/Satronics TBBS	(215)698-1905	Reptile and Amphibian Studies - Poison Snakes/Toads/Fish	Mark Miller	New Hartford ,CT
HH Info-Net BBS	(203)246-3747	MS Windows and OS/2 Files our specialty	Lee Winsor	Berkeley ,CA
HoloNet	(510)704-1058	National Access, INTERNET, USENET, CHAT, GIFS, FILES	Information Access Technologies, Inc.	Arcata ,CA
Home Power Renewable Energy	(707)822-8640	Photovoltaics/Micro-hydro/Generators - Home Power Magazine	Don Kulha/Redwood Alliance	St. Michaels ,MD
HouseNet BBS	(816)331-5868	Home Fixup/Repair/Renovation Tips, Advice, and Articles	Gene and Katie Hamilton	Kansas City ,MO
Howard's Notebook 1:280/25	(613)231-7144	Amiga File Distribution Network 1:163/109	Jim Howard	Ottawa, Ontario ,
Hysteries	(404)835-5300	IBM PC User Groups Database - Newsletter Exchange	Russell McOrmond	Atlanta ,GA
IBM National Support Center BBS	(212)989-4675	Telephone Sales Trade Magazine Online Service	IBM National Support Center	New York ,NY
Inbound/Outbound/Teleconnect	(404)924-8414	Excellent list of Atlanta BBS systems online	Harry Newton Publications	Marietta ,GA
Index Systems	(606)278-2002	8 line Galacticorn System - Many good text publications	Rodney Aloia	Lexington ,KY
Infinity World	(201)335-2253	Demo BBS for InfoHost BBS Software - Multiline - Database	Daniel Diachun	Hasbrouch Heights ,NJ
InfoHost Demo BBS	(615)434-2551	Space Database - Online Store - Chat	A-Comm Electronics Inc.	Johnson City ,TN
Infotlink for Upper East Tenn.	(214)458-2620	LAN Related Files and Utilities 1:124/6101	John Williams	Dallas ,TX
Inns of Court, The	(503)645-6275	Support for Intel PC Products - Inboard 386/AboveBoard 286	Intel Corporation PCEO Division	Hillsborough ,OR
Intel PCEO Support BBS	(212)274-8110	46 Lines - 100 Directories - Full Usenet Feed - 8.2 GB	Mike Sussell	New York ,NY
Invention Factory	(206)285-5359	Online Investment/Stock Market Information/Tech Analysis	Don Shepherdson	Bellevue ,WA
Investor's Online Data	(408)559-0253	Online Hardware Order - Catalog - 1.1 GB Files - Quizzes	JDR Microdevices	San Jose ,CA
JDR Microdevices BBS	(404)992-8937	Online Job Listings - 2186 Technical Pos. - 10,000 Corps.	Alpha Systems Inc./Bill Griffin	Roswell ,GA
JOBS	(914)623-0039	OPTIK, TEXT2COM, CBOOT, very good shareware utilities	Keith P. Graham	Nyack ,NY
Keith Graham Shareware Support	(612)340-2489	Prime Rate-Fed Funds-T-Bill-Discount Rate-Economic Data	Federal Reserve Bank of Minneapolis	Minneapolis ,MN
KIMBERELY BBS	(303)665-6091	400 MB Books, Writers Area - TRS 80 Support	Jim and Karen Burt	Boulder ,CO
King's Market BBS 104/115	(602)293-8065	Support for LANtastic local area network	Artisoft Inc.	Tucson ,AZ
LANtastic BBS	(415)695-0759	Home of UFGATE - Software to connect PCs to UUUCP/Usenet	Tim Pozar	San Francisco ,CA
Late Night Software 125/555	(509)326-3238	Legal issues/Forms - Law BBS List	Bill Sorcinelli	Spokane ,WA

BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARDS AND ON-LINE INFORMATION SERVICES - JUNE, 1993

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
MAC-LINK	(514)486-8959	Macintosh Oriented Support BBS - 6 Lines - Infomat/BIX	Mark Smith	Montreal, Quebec
Macalot Bulletin Board	(412)846-5312	Support for Second Sight BBS Software for Macintosh	Jeff Dripps/FreeSoft Company	Beaver Falls, PA
MacCircles	(303)526-2219	Mac System Software distributor, mail, sigs, files	Patricia O'Connor	Golden, CO
MacInternational	(803)798-3755	Largest MAC BBS on East Coast	Ralph Yount	Columbia, SC
Magpie BBS	(212)420-0527	Support/Demo System for Magpie BBS/Conferencing Software	Steve Manes	New York, NY
MaxiHost Support BBS	(209)836-2402	MaxiHost BBS - small, very easy to run BBS	Don Mankin	San Ramon, CA
McAfee Associates BBS	(408)988-4004	Computer Virus Information - VIRUSCAN and CLEANUP	John McAfee/CVIA	Santa Clara, CA
Meeting Works, The	(212)737-6932	Meeting/seminar/convention planning information.	John Mackenzie	New York, NY
METRO Online Entertainment	(212)831-9280	32 line DLX with City Guide/Ski Database - Matchmaker - Chat	Bruce Kamm/Metro Online Services	New York City, NY
Micro Foundry, The	(415)598-0398	2.2 GB Downloads - Your Online Software Source - Boardwatch	Thomas Nelson/Clockwork Software	San Jose, CA
Micro Message Service	(919)779-6674	USA Today/Boxoffice Magazine - Large Download Area	Mike Stroud	Raleigh, NC
Micro Tech BBS	(314)334-6359	Support for OSIRIS Multiline BBS Software - IRIS Mail	Micro Tech	Cape Girardeau, MO
MicroTm Technical Support BBS	(206)649-9836	Support for Popular R-Base Relational Data Base System	MicroTm Corporation	Redmond, WA
Microsoft Download BBS	(206)936-8735	Windows Technical Notes and Support Information	Microsoft Corp/Scott J. Honaker	Bellevue, WA
Microsystems Software Inc.	(508)875-8009	HandWare Software for Handicapped - CodeRunner C Utilities	MSI - Reed Lewis	Framingham, MA
MindVox	(212)988-5030	Internet Access, E-Mail, Newsgroups, ftp/telnet	Phantom Access Technologies	New York, NY
Minnesota Spacenet	(612)920-5566	Minnesota Space Frontier Society - NASA News	Ben Hussner	Minneapolis, MN
MOG-UR'S EMS, The	(818)366-1238	5 Lines - 8 Networks CD-ROMS - 2.8 GB Hub Services HSTV.32	Tom Timpidis	Granada Hills, CA
Mountain Air BBS	(703)427-0226	Adult Based BBS	Edward Lee Wood, Jr.	Roanoke, VA
Movie BBS	(718)939-5462	Movie Reviews and Information - Television	Clarke Ulmer	New York, NY
N.A.C.D. BBS	(912)246-3280	Cave Scuba Diving - Super Special Topic System	National Assoc. of Cave Divers	Gainesville, FL
N8EMR Ham BBS	(614)895-2553	login:hbs HAM Radio/AMSAT Unix System - Satellite/Packet	Gary Sanders	Westerville, OH
NAPLPS Graphics BBS	(613)727-5272	NAPLPS Graphics Terminal and Editor Software	MicroStar Corp.	Nepean, Ontario
NASA Spacelink	(205)885-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville, AL
Nashville Exchange	(615)383-0727	12 line TBBS - Games/TBBS Software Development 1.8 GB	Ben Cunningham	Nashville, TN
National Genealogical BBS	(703)528-2612	Family History - Genealogical Research - Gravestone Haunting	National Genealogical Society	Arlington, VA
Netcom Internet Guest System	(408)241-9760	Internet Access System - type "guest" at login for info.	Netcom Online Communications Services	San Jose, CA
Network World Bulletin Board	(508)620-1178	LAN and WAN issues and Technology	Network World Magazine/CW Communications	Framingham, MA
NIST ACTS	(303)494-4775	Automated Computer Telephone Service - Sync PC to NBS Time	Nat. Institute for Standards/Technology	Boulder, CO
Nixpix	(303)920-1263	Large Library of Adult GIF Graphics Images	Nick De Wolf	Aspen, CO
NOAA Space Environment Lab	(303)497-5042	Solar Flare/Geomagnetic Data Online	National Oceanographic/Atmospheric Admin	Boulder, CO
NoGate Consulting	(616)530-3392	Home of PAK archive utility	Mike Neuhaus Gus Smedstad	Grand Rapids, MI
Numerisnet	(301)498-8205	Collecting of Coins, Medals, and Exonomia	The Mitchell Group	Laurel, MD
OAPSTTN	(919)541-5742	Air Quality Planning and Standards Technology Transfer Net	Environmental Protection Agency	Research Triangle Park, NC
OASIS BBS	(404)627-2662	Home of Atlanta Bulletin Board List - ABBL	Robert Orr/Online Atlanta Society	Decatur, GA
Occupational Health/Safety BBS	(212)385-2034	Job Safety Issues for Artists, Musicians, Entertainers	Mike McCann/Center for Safety in Arts	New York, NY
Odyssey	(818)358-6968	Adult Multiline Chat System - Games - Magazines - Downloads	Michael Allen	Monrovia, CA
OERI BBS	(800)222-4922	Educational Statistics and Data - Performance Stats - Political Discussions - Unix UUCP Public Access - Multiline	US Department of Education	Washington, D.C.
Old Colorado City Communications	(719)632-4111	Canada's shareware house is online now	Dave Hughes	Colorado Springs, CO
Online Now	(807)345-5522	Hayes Public Bulletin Board - Conferences/SIGS/Support	Gary Walsh/Tom Haavisto	Thunder Bay, Ontario
Online With Hayes	(404)446-6336	South Australian TBBS Multiline System	Hayes Microcomputer Products	Norcross, GA
Oracle PC	(610)260-6222	Sales and Support for Oracle Multiline BBS Software	Don Crago	Pooraka South Australia, CA
Oracom Support BBS	(619)346-1608	Birdwatching, Bird feeding, Naturalist/Ecology Issues	Surf Computer Services	Rancho Mirage, CA
Osprey's Nest	(301)989-9036	Boardwatch-USA Today-Internet-Usenet-RIME	Fran and Norm Saunders	Colesville, MD
Ozone Hole, The	(504)891-3142	Home of THE LIST National BBS List	Mike Mathews	New Orleans, LA
P.D.S.O. BBS	(516)938-6722	Packet Radio Equipment Supplier - TNC/PSK Modems	James Toro	Hicksville, NY
PacComm BBS	(813)874-3078	Shareware library with 100% USR HST access - 24 lines	Gwyn Reedy/PacCom Inc.	Tampa, FL
PC Ohio	(216)381-3320	Online Office Supply Sales Service	Norm Henke	Cleveland, OH
Pennynise	(800)752-3012	Physics and Astronomical Sciences	Pennynise	Edmonston, MD
PHYSICS Forum BBS	(413)545-1959	Large Shareware Library/Echomail Conferences since 1985	Univ. of Mass. Dept. of Physics/Astronomy	Amherst, MA
Pinecliff BBS 104/28	(303)642-7463	Support for Sapphire BBS Software	Craig Baker	Pinecliffe, CO
Pinnacle Software BBS	(514)345-8654	Home of PKZIP 1.10 Compression Utility	Timothy Campbell/Pinnacle Software	Montreal, Quebec
PKWare BBS	(414)354-8670	Sexually Explicit Fantasy Chat System - Adults only	Phil Katz/PKWare Incorporated	Glendale, WI
Pleasure Dome	(804)490-5878	Support BBS for Practical Peripherals Modems	Tom Terrific	Tidewater, VA
Practical Peripherals BBS	(805)496-4445	Home of ProComm 2.4.3 and ProComm Plus Comm Prgrms	Practical Peripherals	West Lake Village, CA
ProComm Support BBS	(314)875-0503	16-Line/2.5GB/11,000+ Files/ WINDOWS, Chat & More	Thomas Smith/DataStorm Technologies Inc.	Columbia, MO
Promised Land, The	(715)387-1339	Commercial Shareware Vendor	Tim Brown/Computer Solutions	Marshfield, WI
Public Brand Software BBS	(317)856-2087	64-line System with \$2.50/hour Local Access	Public Brand Software	Indianapolis, IN
Public Data Network	(503)474-6662	Support for QMail Deluxe and 1stReader offline mail utils	Tony Javoric/Public Data Network	Grants Pass, OR
QMail Deluxe Support BBS	(615)230-8822		Mark (Sparky) Herring	Germantown, TN

Qualitas, Inc. BBS	(301)907-8030	386MAX and BlueMAX Memory Management Software Support	Qualitas Inc.	Bethesda, MD
Quarterdeck BBS	(310)314-3227	Technical Support for QEMM, DESQview, all Quarterdeck Prods	Quarterdeck Office Systems	Santa Monica, CA
QuickBBS Support BBS 363/34	407/896-0494	Product Support for QuickBBS Software	Richard Creighton/Steve Gabrilowitz	Orlando, FL
Random Access Information Svc.	(503)695-3250	11,000 GIF Images - 20,000 DOS/Windows Shareware Files	Janice Stevens	Corbett, OR
Ronin BBS	(214)938-2840	Traditional File and Message BBS	Chuck Mattern	Red Oak, TX
Rose Media	(416)733-2780	19 GB - Home of Rosemail - Publications/Conferences	Vic Kass	Willowdale, Ontario
Rusty & Edies	(216)726-0737	Large ML PCBoard run by Husband and Wife - NFL/Tradewars	Rusty and Edwina Hardenburgh	Boardman, OH
Sanara Club BBS	(818)893-1899	Land-Use Issues, Off-Road, Timber, Conservation	Patrick Martin/Sahara Club	North Hills, CA
Sailing IC BBS	(301)643-1466	National sailing system, yacht racing and clubs, tall ships	Darren Albert	MD-
Sail Air BBS	(801)261-8976	Home of PCBoard BBS Software - National List of PCB Sys	Brian Dear/San Diego NeXT User's Group	Murray, UT
San Diego NeXT User's Group BBS	(619)456-2522	Support for NeXT Computers	Clark Development Company/David Terry	San Diego, CA
SBA Online	(800)697-4636	Advice for Small Business Owners on Financing/Management	Small Business Administration	Washington, DC
Science Resource Studies BBS	(202)634-1764	Federal R&D Budget - Technical Labor Market Statistics	National Science Foundation	Washington, D.C.
SDN Project, The 1:141/840	(203)634-0370	The Original Software Distribution Network	Ray Kaliss	Meriden, CT
SEAbord!	(804)442-6047	Support system for ARC, SEADOG, and AXE software	System Enhancement Associates	Nassawadox, VA
Seagate Technical Support BBS	(408)438-8771	Installation and Specifications for Hard Drive Models	Seagate/Bill Rudok	Scotts Valley, CA
Searchlight BBS	(516)689-2566	Support system for Searchlight BBS Software	Searchlight Software	Stony Brook, NY
SemWare Support BBS	(404)641-8968	Home of QEdit - A Superb Shareware Text Editor	Sammy Mitchell/SemWare Software Products	Marietta, GA
SENDIT	(701)237-3283	North Dakota K-12 Educational Net-tnet sendit.nodak.edu	Gleason Sackman/NDU	Fargo, ND
SIGCAT BBS	(303)648-4168	CD-ROM/Optical Publishing Info - Lists of Gov. CD Data	SIG on CD-ROM Applications and Technol.	Gathersburg, MD
Sistema Profesional Informacion	(525)590-5988	Largest BBS in Mexico - Spanish Language TBBS	Tecnologia Uno Cero S.A. de C.V.	Mexico City
Skeleton Closet, The	(804)671-8547	Geneology Programs File Distribution Net 1:271/23	Debbi McKay	Virginia Beach, VA
Society for Technical Comm. BBS	(703)522-3299	STC Job Service, Freelance Registry - Technical Writers	Society for Technical Communication	Washington, D.C.
Software Creations BBS	(508)368-4137	Home of Apogee Software/Commander Keen Series	Dan Linton	Clinton, MA
Sonshine Express BBS	(510)651-2440	Family Oriented Christian BBS	Anton Johnson	Fremont, CA
Sound Advice BBS	(816)436-4516	Twenty Line PCBoard with 2 Gigabytes Storage - HST Modems	Roy Timberman	Gladstone, MO
Source for Source, The	(516)968-7824	Clipboard/Base/General Programming File Distribution 107/230	Erik VanRiper	Bay Shore, NY
Spare Parts 1:130/38	(817)540-3527	Windows Distribution Network - Windows utilities/files	Larry Mundy	Bedford, TX
Star-Link Network BBS	(718)972-6099	9-nodes, 2.1GB, link, 75,000 programs	Michael Keylin	Brooklyn, NY
Starlink BBS	(915)235-4818	Technical Support for Predictive Maint Customers	John Land	Sweetwater, TX
State and Local Emergency Mgmt.	(202)646-2887	Hazardous Materials/National Dam Watch/Emergency Info	Federal Emergency Management Agency	Washington, D.C.
Supremecy Foundation BBS	(305)370-9376	Online Democracy/Political Culture for the Future	Tim Stryker	Davie, FL
TAXACOM	(716)896-7581	Botany, Herbaria, FLORA ONLINE Newsletter, Latin Translation	Clinton Herbarium, Buffalo Museum	Buffalo, NY
TEAMate Unix Bulletin Board	(310)318-5302	Demo/Support for TEAMate BBS Software for Unix	Bob Baskerville/MMB Development Corp	Manhattan Beach, CA
Telebit Support BBS	(408)745-3229	Support for Telebit Modems	Telebit Corp.	Sunnyvale, CA
Telepath	(503)621-3746	Home of ZModem File Transfer Protocol/YModem/YAM	Chuck Forsberg/Omen Technology Incorp.	Portland, OR
Telix Support BBS	(415)358-8641	DBMS/Dr. Dobbs Journal Magazine Online Service	M&T Publishing	Redwood City, CA
The Back Room	(718)849-1614	Support Service for Telix Communications Software	Jeff Woods/deltaComm Development	Cary, NC
The File Bank	(818)896-4015	America's Largest Exclusively Gay DB - Home of Gaycomm	Fred Kohn	Richmond Hill, NY
The Ledge PCBoard	(303)534-4646	Utilities/Support for Microsoft Windows	Jim Appleby	Los Angeles, CA
The Opowd Crowd	(708)885-8865	16 Line File Library - Radio Comm/Astronomy - USA Today	Girard Westerberg/Brian Bartee	Tujunga, CA
The Other BBS 1:1/0	(717)657-2223	Home of Textview Door for PCBoard Systems	Joseph Sheppard	Hoffman Estates, IL
The Well	(415)332-6106	Fidonet Zone Coordinator for North America 1:1/0	George Peace	Harrisburg, PA
Titan BBS	(904)476-1270	Unix Conferencing System - \$15 monthly plus \$2.00 Hourly	Whole Earth Electronic Link	Sausalito, CA
Tool Shop BBS	(818)891-6780	Adult BBS - Online Games - GIF Images	Sam Smith	Pensacola, FL
Town Hall	(800)648-6964	Home of HS-Link and other tools for PCBoard Systems	National Review Magazine	New York, NY
Trinity 1 BBS	44 392 410210	Conservative Political Conference and Debate	John Burden	Exeter Devon, U.K.
TurBoard	(615)756-7810	United Kingdom Distributor of Boardwatch Magazine	Software@work	Chattanooga, TN
U.S. Robotics - Sit UBU Sit	(708)982-5092	NAPLPS Graphics BBS System	U.S. Robotics Corporation	Skokie, IL
US Naval Observatory BBS	(202)653-1079	Support for US Robotics HST 9600 bps Modems	US Department of Commerce US Naval Obser	Washington, D.C.
USGS Quick Epicenter Determin.	(303)273-8672	Time - Date - Sunrise - Sunset - Enter @ TCO for Commands	US Geological Survey Earthquake Info Ont	Denver, CO
USNO Time of Day for Clocks	(202)653-0351	Earthquake Epicenter Data - Geomagnetism 7E2 800-358-2663	US Naval Observatory	Washington, D.C.
UT Library Online Catalog	(512)471-9420	Xmits ASCII Time String - Sync Your PC to USNO Atomic Clock	University of Texas at Austin	Austin, TX
Ventura Professional Forum	(408)227-4818	Online Library Card Catalog Listing 3.5 million entries	Gene Rodrigues - Ventura Professional	San Jose, CA
WeatherBank	(800)827-2727	Ventura Publisher User's Group BBS	Steve Root/WeatherBrief Data Services	Salt Lake City, UT
Western Digital Tech Support	(714)753-1068	Online Weather Forecasts for Any City - Download Radar Data	Western Digital Corporation	Los Angeles, CA
Westside, The	(213)933-4050	Hard Drive/Controller Installation and Config Data	Dave Harrison	Bakersfield, CA
Wildcat HQ BBS 210/12	(805)395-0650	Area's Largest/Most Active Adult System-Chat,E-mail Games,	MSI - Mustang Software, Inc.	Windsor, CT
Windcor Manor	(203)688-4973	Multiline Support System for Wildcat BBS Software	Jim Taylor	Columbus, OH
Wizard's Gate, The	(614)224-1635	Over 27 Online Adventure Games	Joseph G. Balshine	Orem, UT
Word Perfect Customer Support	(801)225-4444	Multi-Line Totally Free BBS-Multi Player Games,Files,Message	Word Perfect Corporation	Concord, CA
Worldview BBS	(310)208-6689	Word Perfect 4.2/5.0/5.1 Support/Printer Drivers	Bill Gram-Reefer	Rolling Hills Estates, CA
WWIV Support BBS	(510)676-2919	Reformed Protestant Topics; Telefinder Host	Wayne Bell	San Luis Obispo, CA
XTree BBS	(805)546-9150	Support for WWIV BBS Software	XTree Company	Bellerica, MA
XyQuest Support BBS	(508)667-5669	Support for XTree Pro Gold DOS Shell Program	XyQuest Inc. - Christine Madsen	Austin, TX
Yellow Dream Machine BBS	(512)451-3222	Support for XyWrite Word Processor - Custom Keyboard Files	Bill Scarborough/Cyanosis Rex	
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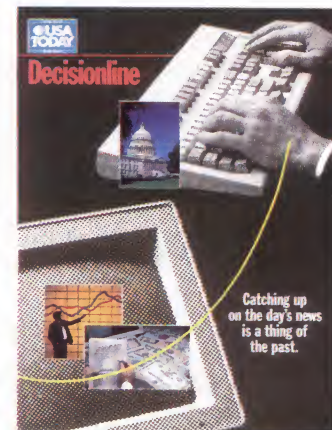
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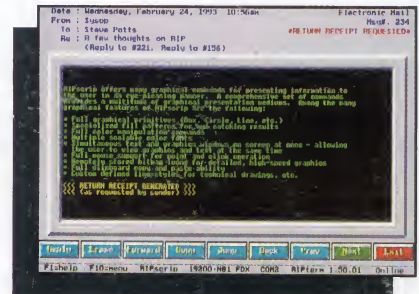
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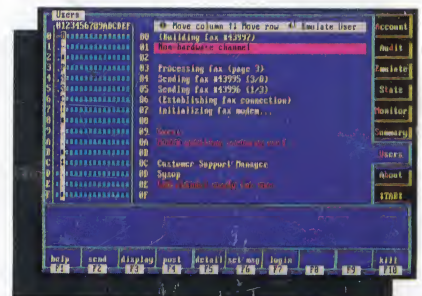
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